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Eating disorder prevention: a comparison of intervention paradigms

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Eating disorder prevention: A comparison of intervention paradigms

by

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For the Major Program
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ABSTRACT

The eating disorder prevention literature is replete with discrepant outcome findings regarding the efficacy of various prevention approaches. In addition, no single study has provided a direct empirical comparison evaluating the efficacy of two prevention approaches and a no-treatment control. The present experiment was to provide a direct empirical comparison of the efficacy of a dissonance-based approach, a psychoeducational/sociocultural approach, and a no-treatment control condition in the prevention of eating disorder attitudes and behaviors.

Two 3 (group: dissonance, psychoeducational/sociocultural, and control) x 2 (symptomatic status: symptomatic, asymptomatic) preliminary MANOVAS were conducted on the 6 postintervention and 5 follow-up measures. In addition, two 2 (group: dissonance, psychoeducational/ sociocultural) x 2 (symptomatic status: symptomatic, asymptomatic) MANOVAS were conducted on postintervention and follow-up data to explore differences between the dissonance-based and psychoeducational/sociocultural conditions only. It was predicted that the dissonance-based intervention would be more effective than both the psychoeducational/sociocultural and no-treatment control conditions in reducing eating disorder attitudes and behaviors.

Findings indicated that the psychoeducational/sociocultural intervention was superior at postintervention at reducing dietary restraint for the symptomatic portion of the sample. It was also found that the dissonance based intervention was most effective for the symptomatic portion of the sample in reducing eating disorder behavior at postintervention. However, these results were not maintained at 4-week follow-up. Implications for eating disorder prevention paradigms are discussed.
INTRODUCTION

The prevalence of eating disorders in western societies has been rising steadily for the past 5 decades and is quickly becoming a significant public health concern (Santonastaso, Zanetti, Ferrara, Olivotto, Magnavita, & Favaro, 1999; Shisslak, Crago, & Neal, 1990). Prevalence estimates range from 3% to 10% for females between 15 and 29 years of age, with diagnoses of bulimia nervosa outnumbering diagnoses of anorexia nervosa by at least two to one (Polivy & Herman, 2002). The devastating physical and psychological impact of these disorders, coupled with their relatively resistant and enduring nature, frequently hinder treatment success (Huon, 1994). Successful treatment prospects are further diminished as the duration of the disorder increases. The grim nature of this situation is compounded by the fact that the majority of eating-disordered individuals never seek treatment (Welch & Fairburn, 1994). These considerations highlight the importance of eating disorder prevention programs.

The past decade has witnessed an increased willingness to explore the area of eating disorder prevention (Piran, 1998; Rosenvinge & Borresen, 1999; Smolak & Levine, 1994). Numerous prevention curricula have been developed and applied in a variety of settings (Carney, 1986; Carter, Stewart, Dunn, & Fairburn, 1997; Gresko & Karlsen, 1994; Huon, 1994; Moreno & Thelen, 1993; Paxton, 1993; Rhyne-Winkler & Hubbard, 1994). Some empirical research has been conducted evaluating the effectiveness of various intervention programs (Piran, 1998). However, controlled evaluations of prevention programs have been relatively few in number and have provided conflicting results (Stice, Mazotti, Weibel, & Agras, 2000).
The aim of this research is to provide a comprehensive review of the empirical literature examining the effectiveness of various eating disorder prevention programs and to report the results of an investigation that will provide a direct comparison of two prevention paradigms. The review component is organized into six sections. First, various models of eating disorder pathology will be presented. Second, the theoretical bases and intervention techniques employed in various programs will be examined across the 16 selected studies. Third, methodological considerations will be addressed. Specifically, the characteristics of the various samples and the methodology used to recruit them will be reviewed and the implications for findings discussed. In addition, the following important methodological issues will be explored: sampling procedures, random assignment, control groups, sample focus (primary or secondary prevention), intervention length, and follow-up interval length. Fourth, the constructs most commonly incorporated in the assessment of prevention outcomes will be reviewed. In addition, an outline of the instruments and measures commonly employed to operationalize these constructs will be presented. Fifth, the results of the 16 investigations will be presented and the implications for prevention programs discussed. Finally, conclusions and recommendations will be offered. Following this review section, a description of the current investigation will be presented and the results and implications discussed.

Models of Eating Disorder Pathology

Prior to reviewing various eating disorder prevention paradigms, it is important to present the general models commonly employed to represent the multifaceted components of eating disorder pathology. Several different models of eating disorder pathology have been developed in order to facilitate a more complete understanding of the complexity of these
disorders. Three models most commonly referenced and most extensively researched are the cognitive model, the sociocultural model, and the biopsychosocial model. Each model will be reviewed and their implications for eating disorder prevention discussed.

**Cognitive Model**

The cognitive theory of eating disorders postulates that distorted attitudes surrounding physical appearance contribute significantly to eating disorder risk factors such as body dissatisfaction, idolization of the thin-ideal, and dietary restriction (Spangler, 2002). Specifically, the cognitive model posits that persons at risk for developing eating disorder pathology place an unhealthy emphasis on physical appearance and tend to be unable to discriminate between beliefs about the self and beliefs about appearance (Cooper, 1997; Spangler, 1999; Vitousek, 1996; Vitousek & Hollon, 1990). Therefore, since self-worth appears to be disproportionately dependent on appearance, any perceived deficit in physical attractiveness (such as failure to subscribe to the thin-ideal) leads to body dissatisfaction. It is further hypothesized that this dissatisfaction with body shape, size, and weight then contributes to the development of restrictive eating and other disordered eating behaviors.

In summary, the cognitive theory of eating disorders professes that eating disorders are driven primarily by maladaptive psychological beliefs about appearance, which then initiate dietary restraint. Then, following the initiation of dietary restraint, critical psychological and physiological changes occur that lead to the continuation of the disordered thoughts and behavior patterns characteristic of eating disorder pathology (Fairburn, Marcus, & Wilson, 1993; Spangler, 1999). Many researchers have empirically evaluated the tenets of the cognitive theory of eating disorders. Most recently, Spangler (2002) found results supporting its most basic premise, using structural equation modeling to demonstrate that
beliefs about appearance predicted dietary restriction, body dissatisfaction, self-esteem, and thin-ideal internalization. In light of these findings, Spangler (2002) suggested that prevention efforts should focus on assessing and targeting dysfunctional beliefs surrounding bodily appearance by attacking the notion that appearance is fundamental to the experience of pleasant interpersonal relationships, self-esteem, professional achievement, and positive affect.

_Biopsychosocial Model_

Many critics of the cognitive theory of eating disorders suggest that its usefulness is limited because it is too narrow in scope and fails to adequately capture the complexity of the many factors involved (Steiger & Seguin, 1999). Biopsychosocial models of eating disorder pathology propose that eating disorders are the products of dynamic interactions among 1) biological processes (e.g., mood, temperament, and appetite); 2) psychological/developmental processes (e.g., personality development and attitudes toward eating/body image); and 3) social processes (e.g., cultural emphasis on thinness, societal expectations of women, and other social influences affecting self image) (Garfinkel & Garner, 1982; Johnson & Connors, 1987; Strober 1991).

Steiger & Seguin (1999) propose that vulnerabilities in these three areas can sum to a manner in which the threshold for developing eating disorder behavior is surpassed and these tendencies are then expressed as full-blown disorders. On the other hand, vulnerabilities may exist in particular areas, but the magnitude of such vulnerabilities may be such that the threshold is not surpassed and therefore, the disorders are not present.

The prevention implications of the biopsychosocial model are numerous. It implies that interventions could be made in a variety of arenas, but suggests that the most practical
approach may be to identify persons with multiple risk factors and then to develop interventions that focus on reducing such vulnerabilities in this at-risk population.

Sociocultural Model

The sociocultural model of eating disorders takes a less broad approach than the biopsychosocial model, focusing exclusively on idea that sociocultural pressures play a key role in the promotion and maintenance of eating disorder behavior (Stice & Shaw, 1994). Specific examples of the sociocultural pressures contributing to eating disorder pathology include the following: the ultra-thin body image presented in the media of Western cultures as the ideal feminine body type (or the thin-ideal), the central role that appearance plays in the female gender-role, and the belief that appearance is a critical component that must be present if women are to attain success in Western culture (Stice & Shaw, 1994; Striegel-Moore, Silberstein, & Rodin, 1986).

According to the sociocultural model, these messages pressuring women to attain ultra-thin bodies combine to create a societal emphasis on thinness that results in an increased body dissatisfaction among women (Stice & Shaw, 1994; Wilson & Eldredge, 1992). Degree of body dissatisfaction is represented by a continuum and it is assumed that women displaying diagnosable eating disorders fall at the extreme end of this continuum of body dissatisfaction. It is then hypothesized that this extreme emphasis on perceived bodily deficits makes them vulnerable to obsessive preoccupation with food and weight (Pike & Rodin, 1991; Rodin, Silberstein, & Striegel-Moore, 1985).

Numerous research studies have supported the accuracy of the assumptions espoused by the sociocultural model. Some particularly salient findings were reported by Stice & Shaw (1994), in which an experiment was conducted to evaluate the impact of exposure to
the thin-ideal on women’s affect, body satisfaction, and endorsement of the thin-ideal stereotype. Results of this study indicated that exposure to the thin-ideal led to subsequent depression, stress, guilt, shame, insecurity, and body dissatisfaction in a sample of female undergraduate students. In addition, multiple regression analyses demonstrated that negative affect, body dissatisfaction, and subscription to the thin-ideal predicted bulimic symptoms (Stice & Shaw, 1994).

Following the report of these findings, the authors went on to suggest that eating disorder prevention paradigms should focus on the following: 1) reducing the internalization of the thin-ideal stereotype; 2) promoting body acceptance and satisfaction; 3) emphasizing the discrepancy between biological reality and the promoted ideal; and 4) discussing the detrimental psychological and physical impact of pursuing an unrealistic body ideal. The prevention goals outlined by proponents of the sociocultural model seem realistic given that they focus on challenging societal ideals, rather than attempting to change resistant, long-standing psychological characteristics and less malleable biological tendencies.

Review of Eating Disorder Prevention Research

Now that different models of eating disorder etiology have been discussed and their implications for eating disorder prevention explored, the goal of the next section is to review the existing eating disorder prevention literature. The 16 studies selected in this review (referenced in the text of the article as well as in Tables 1, 2, and 3 were based on three primary inclusion criteria. First, all studies were conducted mid-1980s to present thereby representing the latest knowledge that exists in this area. Second, all included studies provided empirical outcome findings as opposed to qualitative reports. Finally, each study
evaluated the success of various prevention intervention paradigms on a variety of measures of eating disorder pathology.

Selected studies were identified via the following three sources: 1) numerous searches on the PsychInfo database (search terms: eating disorder prevention; bulimia, anorexia, binge eating disorder and prevention paradigms; eating disorder, prevention, intervention, and paradigms); 2) the perusal of references included in all articles identified in the original searches; and 3) through the review of other seminal articles in the area. Two studies that met all other inclusion criteria were not included in this review because they relied solely on media-based interventions and were also unpublished doctoral dissertations unavailable at the time of the review (Appendix A).

Theoretical Bases and Intervention Techniques

A review of the intervention techniques employed in 16 prevention studies revealed that interventions were largely composed of the following five approaches:

- psychoeducational (Baranowski & Hetherington, 2001; Moreno & Thelen, 1993; Shisslak, Crago, & Neal, 1990);
- sociocultural (Nelson, 1996; Sapia, 2000);
- combined psychoeducational and sociocultural (Carter, Stewart, Dunn, & Fairburn, 1997; Franko, 1998; Killen, Taylor, Hammer, Wilson, Rich, Hayward, Simmonds, Kraemer, & Varady, 1993; Paxton, 1993; Santonastaso, Zanetti, Ferrara, Olivotto, Magnavita, & Favaro, 1999; Stewart, Carter, Drinkwater, Hainsworth, & Fairburn, 2001);
- dissonance-based (Huon, 1994; Stice, Chase, Stormer, & Appel, 2001; Stice et al., 2000);
- and testimonial (Mann, 1995; Mann, Nollen-Hoeksemsa, Huang, Burgard, Wright, & Hanson, 1997).
Psychoeducational approach

The main focus of the psychoeducational approach is the provision of information regarding basic elements of eating disorder pathology. Topics discussed include detrimental physical and psychological consequences, and attitudes, beliefs, and coping mechanisms associated with disordered eating (Baranowski & Hetherington, 2001; Moreno & Thelen, 1993; Shisslak, 1990). The fundamental goal of these prevention programs is the provision of information to increase awareness and subsequently prevent eating disordered behaviors. This approach is similar to a rational-didactic approach known as the KAP (Knowledge-Attitude-Practice) model (Rosenvinge & Borresen, 1999). The KAP model predicts that people will not engage in particular behaviors once they are informed that the consequences of such behaviors are harmful (Rosenvinge & Borresen, 1999). Previous research on this strategy in other fields, such as alcohol and drug addiction or suicide prevention have suggested that it is largely unsuccessful in preventing the targeted behavior (Kinder, Pape, & Walfish, 1980; Shaffer, Garland, Vieland, Underwood, & Busner, 1991).

This proposal reviews three studies that based their prevention efforts on a psychoeducational approach. Shisslak et al. (1990) conducted a psychoeducational program to educate students, faculty, and staff on a high school level about the incidence, symptoms, and consequences of eating disorders. The program consisted of eight presentations made to students during a 9-week period, and four presentations made to faculty and staff. Topics were covered in the following sequence across the eight-week intervention: 1) symptoms and prevalence of anorexia and bulimia nervosa, 2) psychological characteristics associated with eating disorders, 3) psychological characteristics associated with eating disorders (cont.), 4)
medical complications, 5) family characteristics, 6) risk factors, 7) risk factors (cont.), 8) treatment types and treatment available in the community.

Moreno & Thelen (1993) also conducted a study examining the effectiveness of a psychoeducational prevention program. The researchers presented an experimental psychoeducational program to junior high students focused on attitudes and knowledge about body weight, dieting, and purging as well as behavioral intentions to diet. This presentation required students to watch a videotape that was six and one-half minutes long followed by 30 minutes of discussion. The videotape included a discussion of: 1) a description of bulimia nervosa, 2) information about the prevalence of bulimia nervosa in adolescents, 3) harmful physical effects of bingeing and purging, 4) social/cultural attitudes regarding thinness, 5) a description of restrained eating and its effects, 6) suggestions for weight management, and 6) suggestions for resisting peer pressure to diet.

Baranowski & Hetherington (2001) also implemented a psychoeducational program designed to combat low self-esteem, dieting behavior, and the attitudes and beliefs associated with eating disorders in a sample of preadolescent girls. This intervention was 5 weeks in duration, consisting of 1 hr 30 min sessions that were activity based. It incorporated a variety of educational materials in a cognitive-behavioral framework in which participants worked both independently and small groups. Homework assignments were also given between sessions. Topics covered included: 1) the causes and consequences of dieting, 2) appraisal of weight and shape, 3) stereotypes associated with thinness and obesity, 4) self-esteem, 5) body-esteem, 6) eating disorders, and 7) energy regulation.
Summary of Psychoeducational Approach

As addressed above, the three psychoeducational approaches reviewed varied considerably in terms of their audiences (high school, junior high, preadolescent) and their duration (9 weeks, 5 weeks, less than one hour). However, one common component was the goal of information provision to increase awareness, with the notion that increased knowledge would decrease the likelihood of future eating disordered behavior. Across the three studies information was provided on the following topics: low self-esteem, dieting behavior, attitudes and beliefs associated with disordered eating, attitudes and knowledge about weight, incidence and consequences of eating disorders.

Sociocultural Approach

The sociocultural approach is based on the tenets of the sociocultural model (Nelson, 1996; Sapia, 2000; Stice, Schupak-Neuberg, Shaw, & Stein, 1994). The basic premise of the sociocultural model is that sociocultural pressures (SCP) from family, peers, and the media promote internalization of the thin ideal, which in turn predict body dissatisfaction, drive for thinness, and weight control methods. Weight control methods then lead to “normative dieting” and subclinical eating disorders or diagnosable eating disorders such as anorexia nervosa and bulimia nervosa. Protective factors such as resistance to sociocultural pressures, physical self-esteem, and competence are included in the model. In addition, risk factors such as susceptibility to sociocultural pressures and their direct link to body dissatisfaction, drive for thinness, and weight control methods are also discussed.

This proposal reviews two studies that based their prevention programs upon the Sociocultural Model. Nelson (1996) incorporated the Sociocultural Model in a five session prevention program aimed at middle school students. This program addressed issues such as
the theoretical antecedents to eating disorders as proposed by the Sociocultural Model. Sessions were designed to decrease risk factors such as susceptibility to sociocultural pressures, body dissatisfaction, drive for thinness, and use of dangerous and/or inappropriate weight control methods. In addition, efforts were made to increase protective factors such as physical self-esteem, competence, and resistance to sociocultural pressures. It should be noted that the final session of this program included a testimonial from a young woman recovering from an eating disorder.

Sapia (2000) also implemented a prevention approach based on the Sociocultural Model in a four-session program aimed at undergraduate sorority females. This program focused on the media’s portrayal of the ideal female body, corresponding sociocultural pressures to conform to this body type, in addition to discussion of genetic determinants of body size and shape, strategies for physical fitness and weight maintenance, and building an internal locus of control to increase feelings of personal power.

**Summary of Sociocultural Approach**

The two studies reviewed that incorporated elements of the Sociocultural Model differed in terms of their audiences (middle school students, undergraduate sorority members) and their duration (5 session, 4 session), but shared the critical component that they both focused on sociocultural pressures and their role in the development of eating disorders. Specific constructs examined included the following: media portrayal of the ideal female body, sociocultural pressures to conform to this body type, genetic determinants of body size and shape, strategies for weight/physical fitness maintenance, fostering personal power, control issues, and self-esteem, and decreasing body dissatisfaction and the use of dangerous weight control methods.
Combined Psychoeducational and Sociocultural Approach

As the title intuitively suggests, a third approach, a combined psychoeducational and sociocultural approach incorporates fundamental aspects of both models. A typical program of this nature will provide psychoeducational material related to eating disorder incidence, symptomatology, risk factors, and consequences and will specifically address sociocultural pressures while discussing the risk factor component.

This proposal reviews six studies that implemented a combined psychoeducational and sociocultural approach. Santonastaso, Zanetti, Ferrara, Olivotto, Magnavita, & Favaro (1999) used this approach in a four-session program aimed at females enrolled in vocational training schools. Each session involved the presentation of didactic material for 30-50 minutes and the remainder of the 2-hour sessions was devoted to open group discussion. Specifically, the program addressed the importance women placed on physical appearance and body image concerns, the desire to be thinner, self-esteem and a desire to please others, and common adolescent struggles that may lead to an increased risk for eating disorders.

Killen et al. (1993) also incorporated a combined psychoeducational and sociocultural approach into their 18 lesson intervention with sixth and seventh grade girls that addressed: 1) the harmful effects of unhealthful weight regulation, 2) the promotion of healthful weight regulation through nutrition and physical activity, and 3) the fostering of coping skills designed to aid in resisting sociocultural pressures to conform to the thin beauty ideal. Material was presented via slide show presentations that illustrated the stories of seven girls who displayed both healthy and unhealthy approaches to weight regulation. In addition, participants were given a workbook with written assignments to be completed during the intervention.
Carter et al. (1997) also implemented a similar approach in their program of eight weekly 45-minute sessions directed toward girls aged 13 to 14. In this program, sociocultural factors were addressed, as well as psychoeducational material about the etiology and treatment of eating disorders, with cognitive and behavioral components aimed at addressing and challenging risk factors. The program included didactic presentations and small group exercises including role play and discussion. In addition, participants kept records of their eating behaviors for 2 weeks and completed homework activities designed to encourage them to apply the material to their own daily lives.

Other programs reviewed that incorporated a combined approach include Stewart, Carter, Drinkwater, Hainsworth, & Fairburn (2001) whose six session, weekly 45-minute intervention program was aimed at adolescent girls ages 13-14. Important constructs addressed included the following: 1) challenges of adolescence, 2) sociocultural pressures toward thinness, and 3) coping with stress and adverse comments about weight, dieting, and low self-esteem. Presentations were interactive in nature and focused on guided discovery, role play, small group discussions, and self-monitoring of healthy and unhealthy eating thoughts.

Franko (1998) addressed nearly identical constructs in an eight-week intervention directed toward college women. Specifically, this 8-week intervention program focused on the following: 1) exploration of cultural ideals of thinness in society and its impact on women, 2) education about nutrition, weight management, and the development of healthy eating behaviors, 3) identification and examination of dysfunctional beliefs and attitudes about shape and weight and the importance of appearance, and 4) discussion of personal values, self-worth, identity development, effective expression, and coping skills to deal with
negative feelings. Each session consisted of a half-hour of didactic presentations and an hour of group discussion and in-session exercises.

Finally, Paxton (1993) employed a combined approach in a five class program conducted with Australian adolescence that focused on media images of women, determinants of body size, health and unhealthy weight control methods, and emotional eating. The intervention program was composed of five sessions, which participants 1) were presented with written information discussed by the experimenter, 2) participated small group activities and individual research activities, and 3) were actively engaged in group discussions.

Summary of Combined Psychoeducational and Sociocultural Approach

A combined psychoeducational and sociocultural approach is the intervention most commonly employed in the eating disorder prevention arena. Key constructs addressed in a review of six studies incorporating this approach included the following: media images of women, sociocultural pressures, determinants of body size, healthy/unhealthy weight control methods, emotional eating, alternative coping methods, dieting, low self-esteem, and psychoeducational information about the incidence, etiology, consequences, and treatment of eating disorders.

Dissonance-Based Approach

The fourth approach involves dissonance-induced interventions. Dissonance-based interventions are based on Festinger’s theory of cognitive dissonance, which states that when a person holds inconsistent cognitions psychological discomfort is created and a person is motivated to alter his or her cognitions to restore consistency (Festinger, 1957; Festinger & Carlsmith, 1959; Stice et al., 2001). The theory of cognitive dissonance posits that attitudinal
changes occur when dissonance is present because a person has engaged in a behavior that is inconsistent with his/her beliefs. It is this lack of consistency that leads to psychological tension (or dissonance) and the person is intrinsically motivated to reduce this tension. Since the previous behavior cannot be retracted, the person will be motivated to change his or her attitude so it is more closely aligned with the executed behavior (Festinger, 1957; Festinger & Carlsmith, 1959).

Festinger & Carlsmith (1959) identified certain conditions under which it is most likely that cognitive dissonance will be high and therefore, likely to result in attitude change. First, it is imperative that the inconsistent behavior or attitude is perceived to be under the person’s voluntary control. If the person attributes the attitude-discrepant behaviors to environmental pressures, then it is unlikely that dissonance will be invoked. The explanation offered for these findings is that if there seems to be insufficient justification to engage in a certain attitude-discrepant behavior, then the person will be more likely to experience dissonance because they are unable to provide a rational explanation for the inconsistency. Conversely, if a person is able to find sufficient justification for the attitude-discrepant behavior (e.g., attributes the behavior to situational demands) then he/she will be less likely to experience dissonance and subsequent behavior change.

A second critical component of dissonance theory is that the attitude-discrepant behavior is expressed publicly (Festinger & Carlsmith, 1959). The thought underlying this tenet is that if the expression is private the person will be more likely to deny its occurrence. However, when it is made public and therefore is undeniable, the person must actively confront the dissonance produced by the discrepancy.
Since its original conceptualization, many theorists have elaborated extensively on the components necessary to incite a high level of cognitive dissonance (Aronson & Mills, 1959; Axsom & Cooper, 1985; Baumeister, 1982; Baumeister & Tice, 1984; Cooper & Fazio, 1984; Stone & Cooper, 2001). One idea discussed by numerous researchers is the notion that expending a high level of effort will lead to a higher level of cognitive dissonance and therefore, a greater amount of subsequent attitude change (the effort justification hypothesis). The notion underlying this hypothesis is that people will alter their attitudes to justify their suffering if a high level of exertion is expended. Several studies have found support for this hypothesis (e.g., Aronson & Mills, 1959; Axsom, 1989; Axsom & Cooper, 1985).

Cooper & Fazio (1984) added further to the criteria for invoking cognitive dissonance by outlining four steps necessary for cognitive dissonance to result in attitude change. First, the attitude-discrepant behavior must result in unwanted negative consequences. Second, personal responsibility for these consequences must be accepted. Third, physiological arousal must be present. Finally, the person must have some awareness that the arousal is the result of the attitude-discrepant behavior.

This review incorporates three articles that have applied the theory of cognitive dissonance to eating disorder prevention. Though it is not consistently clear which components of cognitive dissonance theory were emphasized, in all three of the following prevention studies dissonance concepts were incorporated in some form. Stice, Mazotti, Weibel, & Agras (2000) employed a dissonance-based intervention strategy in a three-session prevention program aimed at 30 female undergraduate college students. In the investigation, dissonance was invoked by directing the sample of women with self-identified
body image concerns, to argue voluntarily against the thin ideal. Specifically, they were asked if they would help the experimenters create a body acceptance program for high school females by discussing strategies adolescents can use to avoid internalizing the thin ideal. Participants discussed the origin of the thin ideal, how it is perpetuated, engaged in counter attitudinal role-plays, and wrote counter attitudinal essays. Researchers predicted that engaging in such acts would increase dissonance and therefore, lead to a decrease in their endorsement of the thin ideal and the disordered eating behaviors that frequently accompany it.

Stice, Chase, Stormer, & Appel (2001) conducted a similar experiment in a three-session intervention aimed at young women (ages 17-29), except the counter attitudinal essays were replaced by a homework exercise that required subjects to examine their reflections in a full-length mirror and record only positive aspects of themselves (including physical, behavioral, emotional, and social characteristics). Again, the focus of this program was to engender cognitive dissonance in the form of discomfort with the thin ideal, which researchers anticipated would lead to a decrease in body dissatisfaction and subsequent eating disordered behavior.

In addition, in a third study Huon (1994) also employed a two-session dissonance-based prevention strategy that directed female university students to discuss ways to facilitate change in young women’s attitudes toward their bodies and their subsequent intentions to diet. Again, the rationale behind this activity was that it would foster tension through cognitive dissonance, which would subsequently lead to decreased body hatred and dieting intentions.

Summary of Dissonance-Based Approach
The three reviewed studies were directed at female college students and young women. The investigations varied somewhat in the length of the intervention employed (two-session or three-session), but shared the common components that they were activity or discussion based and were focused on fostering cognitive dissonance within participants that would subsequently result in less endorsement of the thin ideal. It was predicted that subsequent increases in body satisfaction and decreases in dieting behavior would occur, as participants altered their attitudes to reduce the tension invoked by the dissonance they were experiencing.

**Testimonial Approach**

A fifth approach to eating disorder prevention utilizes testimonials. The testimonial approach consists of women who have previously or are currently struggling with eating disorders telling their stories to an audience in the hopes that personal accounts of the negative consequences of eating disorders will discourage disordered eating behavior. One study was located that employed this less common testimonial approach. Mann (1997) used a one-session testimonial approach with a large sample of female college freshman (Mann, 1995; Mann et al., 1997). The intervention had a component in which panelists provided psychoeducational information about eating disorders and then told personal stories about their own experiences. This approach is similar to a purely psychoeducational approach in which the notion is that such information will result in an increased awareness of risks and consequences of eating disorder behavior, thereby reducing its subsequent frequency. The one fundamental difference is that in the testimonial approach the information is presented by a person known to have previously struggled with an eating disorder.
Methodological Issues

Sampling Procedures

None of the 16 studies reviewed recruited random samples. Instead of identifying a target population and then selecting participants at random from that population, convenience samples were recruited. The seven studies recruiting participants from college or college-aged populations took the following approaches: inclusion if they were a member of a particular college course or sorority (Huon, 1994; Sapia, 2000); recruitment via fliers, newspaper announcements, or mass e-mails (Franko, 1998; Stice et al., 2001; Stice et al., 2000), and recruitment through dormitory meetings (Mann, 1995; Mann et al., 1997). The nine studies in which school-aged participants (elementary, middle, or high school) were recruited, included participants who were members of selected classes or selected schools. In all cases except one, neither the schools, nor the particular classes examined, were randomly selected from a predetermined sample of available classes or schools. The one exception was Santonastaso et al. (1999). In this study, researchers randomly selected classrooms to participate in the intervention group and randomly selected students of the remaining available student population to participate in the control group. The remaining 15 studies were composed of convenience samples that included no aspects of random selection. Therefore, the representativeness and subsequent generalizability of their findings are somewhat questionable.
Random Assignment

Random assignment to experimental conditions is a necessary and crucial stipulation that subsequently allows a researcher to assume that there is equality among the participants across conditions on extraneous variables. Of the 16 eating disorder prevention programs outcome studies reviewed, only three (e.g., Killen et al., 1993; Santonastaso et al., 1999; Stice et al., 2001) randomly assigned participants to the experimental and control conditions. Some studies did attempt to statistically compare the samples on various demographic variables, but this procedure does not preclude the necessity of random assignment whenever possible because it is possible that other variables that were not examined statistically could be systematically influencing the results.

Control Group Condition

A notable limitation of eating disorder prevention programs that do not include control group comparisons is the inability to examine other factors that may be systematically influencing the different conditions from pre-intervention baseline to post-intervention follow-up. For example, Carter et al. (1997) note that since their eating disorder prevention program outcome study did not include a control group, "...it is not possible to exclude the possibility that the changes observed were secondary to normal developmental processes or secular influences rather than the influence of the program." A substantial number of the studies reviewed (n=13) incorporated a control group, with 11 studies including no treatment control groups and two studies incorporating healthy weight management control groups. In the weight management control groups nutritional information and information on the benefits of regular physical exercise was provided. Three studies (e.g., Carter et al., 1997; Huon, 1994; Shisslak et al., 1990) failed to incorporate a
control group and therefore, failed to establish a mode of comparison by which to evaluate their results.

**Primary versus Secondary Prevention**

Another difference commonly found between various eating disorder prevention programs is the intended audience. Primary prevention of eating disorder behaviors refers to prevention efforts aimed at universal or global populations that do not target specific at-risk group members, but are applied globally to all members of a selected population. Secondary prevention refers to prevention efforts directed toward a targeted population that has identified characteristics that may put them at an increased risk for the development of disordered eating behavior. Numerous researchers have suggested that the discrepant findings on the assessment of prevention study outcomes could reflect the fact that interventions may only be successful in decreasing symptomatology in the subset of the population that was at-risk in the first place. Therefore, it is hypothesized that secondary prevention efforts may be more appropriate than universal primary prevention efforts.

Of the 16 studies reviewed in this proposal, eight focused solely on primary prevention (e.g., Baranowski & Hetherington, 2001; Carter et al., 1997; Moreno & Thelen, 1993; Nelson, 1996; Paxton, 1993; Sapia, 2000; Shisslak et al., 1990; Stewart et al., 2001); four incorporated a combination of primary and secondary prevention, by statistically identifying at-risk portions of the sample and computing separate analyses on data from these participants (e.g., Killen et al., 1993; Mann et al., 1997; Mann et al., 1995; Santonastaso et al., 1999); and four focused solely on secondary prevention through the recruitment of at-risk populations (e.g., Franko, 1998; Huon, 1994; Stice et al., 2000; Stice et al., 2001).
Another factor that varied considerably across the 16 studies examined was intervention length. Three studies did not present duration in terms of time, but instead reported session number. Killen et al. (1993) reported an 18-session intervention. Shisslak et al. (1990) reported an eight session intervention. Moreno and Thelen (1993) study one reported a four session intervention, and Moreno and Thelen (1993) study two reported a six session intervention. For the 13 studies that did report the duration of the interventions in terms of time, their intervention lengths were as follows: 1.5 hours (Mann, 1995; Mann et al., 1997); 2 hours (Huon, 1994); 3 hours (Stice et al., 2001; Stice et al., 2000); 3 hours and 10 minutes (Nelson, 1996); 4.5 hours (Stewart et al., 2001); 6 hours (Carter et al., 1997; Sapia, 2000); 7.5 hours (Baranowski & Hetherington, 2001; Paxton, 1993); 8 hours (Santonastaso et al., 1999); and 13 hours (Franko, 1998).

In addition, the number of follow-up assessments and the points at which they occurred also varied considerably across the 16 studies. Mann et al. (1997) did not report the exact timing of the Time 1, 2, and 3 assessments in relation to intervention delivery. Three studies assessed participants at preintervention and postintervention only (e.g., Nelson, 1996; Sapia, 2000; Shisslak et al., 1990). Three studies assessed participants at preintervention, postintervention, and 1-month follow-up (e.g., Huon, 1994; Stice et al., 2000; Stice et al., 2001). Moreno and Thelen (1993) assessed participants at preintervention, 2-day follow-up, and 1-month follow-up. Franko (1998) assessed participants at preintervention and 2 month follow-up. Three studies assessed participants at preintervention, postintervention, and 6-month follow-up (e.g., Baranowski & Hetherington, 2001; Carter et al., 1997, Stewart et al.,
Santonastaso et al. (1999) assessed participants at preintervention and at 12-month follow-up. Paxton et al. (1993) assessed participants at preintervention, 1-month follow-up, and 12-month follow-up. Killen et al. (1993) had the longest follow-up period, incorporating different aspects of the assessment measures of interest at 18 weeks, 7 months, 14 months, and 24 months.

**Summary**

Many researchers have hypothesized about potential causes of the discrepant outcomes in the eating disorder prevention literature. Numerous investigators have suggested that the conflicting findings could be a product of methodological issues (Piran, 1998; Rosenvinge & Borresen, 1999). The present review demonstrated the variability and also potential limitations invoked by the methodology used in the 16 studies reviewed. For example, nearly every study (with the exception of one) employed convenience samples. This is an issue of concern because it calls into question the representativeness of the samples and subsequent generalizability of the findings.

Another issue of methodological concern is the fact that only three studies randomly assigned participants to experimental or control conditions. Since random assignment ensures that groups are equal on any extraneous variables, this assumption cannot be made in the majority of these investigations. Therefore, it is possible that extraneous variables are influencing the outcomes in a systematic manner. Some investigations attempted to control for this possibility by statistically controlling for various demographic variables post data collection. However, since it is probable that all variables that could have systematic influence were not controlled for statistically, the lack of random assignment is still of significant concern.
Other problematic aspects of the literature include the fact that the populations included varied greatly, depending on the aims of the study (primary versus secondary prevention). This also has the potential to impact the success of outcomes. Finally, intervention lengths and follow-up periods varied considerably. As noted by Piran (1998) both these considerations are important because one must consider if the intervention is long enough to produce changes and if the optimal time period for change induction has passed by the time of follow-up assessments.

**Key Constructs and Assessment Instruments**

The 16 studies reviewed identified a variety of key constructs fundamental to assessing the outcomes of their various eating disorder prevention programs. Constructs most commonly investigated include the following: weight/desired weight, Body Mass Index (BMI), eating disorder symptoms, self-esteem, physical self-esteem, coping style and social support, knowledge about eating disorders, attitudes towards diet and weight control, and behavioral intentions to diet. This section will address the manner in which these constructs were defined and operationalized in the various studies via the use of a variety of assessment instruments.

**Weight/Desired Weight**

Weight was assessed via self-report in 4 of the 16 studies reviewed (Carter et al., 1997; Mann et al., 1997; Mann, 1995; Santonastaso et al., 1999). Weight change was presumably of interest because it potentially could be indicative of the presence or absence of disordered eating behaviors. Two investigations looked specifically at desired change by taking participants present weight and subtracting their desired weight (Mann, 1995; Mann et al., 1997).
Body Mass Index (BMI)

Body Mass Index (BMI) was assessed in 2 of the 16 studies reviewed (e.g., Stice et al., 2001; Mann, 1995; Mann et al., 1997). Body mass index is computed by dividing weight in kilograms by height in meters squared. Body mass indices have been found to correlate well with confederate measured weight, with the correlations typically ranging from .96 to .99 (Attie & Brooks-Gunn, 1989).

Eating Disorder Symptoms

Five different instruments were used to evaluate eating disorder symptomatology across the 16 studies reviewed. The most commonly employed measure was the Eating Disorder Examination-Questionnaire (Fairburn & Beglin, 1994), which was used to evaluate eating disorder symptoms in six studies (e.g., Carter et al., 1997; Mann, 1995; Mann et al., 1997; Sapia et al., 2000; Stewart et al., 2001; Stice et al., 2000). The EDE-Q was derived from the Eating Disorder Examination (Fairburn & Cooper, 1993) and evaluates main behavioral features of bulimia. The reliability and validity of the EDE-Q has been well documented (Black & Wilson, 1996; Fairburn & Beglin, 1994).

The Eating Disorders Inventory and its revised version, the Eating Disorders Inventory-2, was the second most common instrument used to assess eating disorder symptoms. Three of the 16 studies utilized these measures (e.g., Killen et al., 1993; Paxton, 1993; Santonastaso et al., 1999). The EDI is a 64-item instrument designed to assess various psychological and behavioral characteristics common to anorexia and bulimia nervosa. Its reliability and validity have also been well documented (Garner, Olmsted, & Polivy, 1983).
Other instruments employed to measure eating disorder symptoms in three investigations were researcher-developed measures with no available reliability or validity information (e.g., Killen et al., 1993; Nelson, 1996; Sapia, 2000).

Self-Esteem

Self-esteem was a key construct evaluated in 7 of the 16 studies examined because low self-esteem is known to be a risk factor associated with the onset of disordered eating. Self-esteem was evaluated with three separate instruments. The Rosenberg Self-Esteem Scale was the most common, used in four different studies. The Rosenberg Self-Esteem Scale is a measure of general self-esteem that has a high internal consistency (alpha = .87) and a test-retest reliability of .85 at two weeks (Rosenberg, 1965; Wylie, 1989). Piers-Harris Children’s Self Concept Scale (Piers, 1965) was used to assess self-esteem in two samples (e.g., Carter et al., 1997; Stewart et al., 2001). In addition, a subscale of the Tennessee Self-Concept Scale (Fitts & Warren, 1996) was used by Sapia (2000) to measure self-esteem. Internal consistency reliability coefficients for this subscale ranged from .76-.81 and a test-retest reliability coefficient of .73 was obtained for a two-week interval.

Physical Self-Esteem/Body Satisfaction

Physical self-esteem or body satisfaction is defined as the evaluation and degree of satisfaction one has of his or her body. This variable was evaluated in 10 of the 16 studies reviewed and was assessed with 13 different instruments. The different instruments used to evaluate this characteristic include the following: Positive and Negative Affect Scale-Revised (Watson, Clark, & Tellegen, 1988) (e.g., Huon, 1994; Stice et al., 2001; Stice et al., 2000); Appearance Orientation (AO) subscale of the Multidimensional Body-Self Relations Questionnaire (MBSRQ; Brown, Cash, & Mikulka, 1990) (e.g., Franko, 1998); Body
Dissatisfaction Scale of EDI & EDI-2 (Garner, 1991) (e.g., Franko, 1998; Nelson, 1996; Paxton, 1993; Sapia, 2000); Tennessee Self-Concept Scale subscale (Fitts & Warren, 1996) (e.g., Sapia, 2000); Physical Self-Concept subscale of the Multidimensional Self Concept Scale (MSCS; Bracken, 1992) (e.g., Nelson, 1996); Body Shape Questionnaire (BSQ; Cooper, Taylor, Cooper, & Fairburn, 1987) (e.g., Franko, 1998; Stice et al., 2000); Satisfaction and Dissatisfaction with Body Parts Scale (Berscheid, Walster, & Bohnstedt, 1973) (e.g., Stice et al., 2001); Body Dissatisfaction Scale (BDS; Stice & Shaw, 1994) (e.g., Stice et al., 2000); Body Esteem Questionnaire (Mendelson & White, 1982) (e.g., Baranowski & Hetherington, 2001); Body Silhouettes (Stunkard, Sorenson, & Schulsinger, 1983) (e.g., Baranowski & Hetherington, 2001); Body Figure Perception Questionnaire (Fallon & Rozin, 1985) (e.g., Paxton et al., 1993); Body Cathexis Scale (Secord & Jourard, 1953) (e.g., Paxton et al., 1993); Body Appearance subscale of Multidimensional Self-Esteem Inventory (O’Brien & Epstein, 1988) (e.g., Mann, 1995; Mann et al., 1997).

*Coping Style and Social Support*

Coping style and social support were outcome variables assessed in 4 of the 16 studies reviewed. The following three instruments were used to assess these constructs: Competence subscale of Multidimensional Self Concept Scale (MSCS; Bracken, 1992) (e.g., Nelson, 1996); Social Self-concept subscale of the Tennessee Self-Concept Scale (Fitts & Warren, 1996) (e.g., Sapia, 2000); and the Problem Solving subscale of the Ways of Coping Questionnaire (Folkman & Lazarus, 1988) (e.g., Mann, 1995; Mann et al., 1997).
General Knowledge About Eating Disorders

Two studies included researcher developed general eating disorder knowledge tests designed to assess the level of knowledge acquired from the prevention programs (e.g., Carter et al., 1997; Shisslak et al., 1990).

Attitudes Toward Diet and Weight Control

Attitudes toward diet and weight control were evaluated in five studies. The children’s adaptation of the Eating Attitudes Test (EAT; Maloney, McGuire, & Daniels, 1988) was the instrument used most commonly. It was employed in four studies (i.e., Baranowski & Hetherington, 2001; Carter et al., 1997; Santonastaso et al., 1999; Stewart et al., 2001). The EAT focuses largely on anorexic symptoms and has been widely used as an eating disorder screening instrument in a variety of populations (Stewart et al., 2001). Moreno & Thelen (1993) developed their own questionnaire to assess this dimension.

Behavioral Intentions to Diet Restrained

Behavioral intentions to diet and dietary restraint were assessed in 7 of the 16 studies reviewed. The instrument most commonly used to assess this construct was the Drive for Thinness (DT) subscale of the Eating Disorder Inventory & the Eating Disorder Inventory-2 (Garner, 1991). This subscale was used in four studies (e.g., Franko, 1998, Nelson, 1996; Paxton, 1993; Sapia, 2000). The second most commonly used measure of restraint was the Dutch Restrained Eating Scale (DRES; Van Strein, Frijters, Van Staveren, Defares, & Deurenberg, 1986), used in two studies (e.g., Stice et al., 2001; Stice et al., 2000). Other measures employed included the following: Restraint scale (Herman, Polivy, Pliner, & Threlkeld, 1978) (e.g., Killen et al., 1993); Dutch Eating Behavior Questionnaire (DEBQ; Van Strien, Frijters, Bergers, & Defares, 1986) (e.g., Baranowski & Hetherington, 2001;
Paxton, 1993); and two scales developed by Nelson (1996) and Paxton (1993) specifically for use in their eating disorder prevention investigations.

**Thin-Ideal Internalization**

Two studies of the 16 studies reviewed incorporated a measure of thin-ideal internalization entitled the Ideal-Body Stereotype Scale-Revised (IBSS-R; Stice, Ziemba, Margolis, & Flick, 1996) (e.g., Stice et al., 2001; Stice et al., 2000). A sample item from this scale is the following: Slender women are more attractive (Stice et al., 1996). It is used to assess the degree to which participants subscribe to the media's portrayal of feminine beauty, which is centered on ultra-thin body images. The scale possessed acceptable internal consistency (alpha = .94), test-retest reliability (r = .90), and convergent and predictive validity (Stice & Agras, 1998).

**Summary**

The 16 studies reviewed incorporated a wide variety of constructs in assessing the outcomes of their prevention efforts. Key constructs most commonly investigated included the following: weight/desired weight, Body Mass Index (BMI), eating disorder symptoms, self-esteem, physical self-esteem, coping style and social support, knowledge about eating disorders, attitudes towards diet and weight control, and behavioral intentions to diet. These constructs were operationalized through diverse assessment instruments, with the ones most commonly used to assess each construct noted.

**Investigation Results**

Intervention studies can be aggregated based upon whether there has been an improvement in eating disorder attitudes and behaviors. As noted previously, the eating disorder prevention outcome literature is replete with discrepant findings. An overview of
the findings compiled by the 16 studies reviewed in this proposal further reiterates this fact. Investigation results for the 16 selected studies will be separated into one of 3 improvement categories: improvement, no change, and deterioration. Studies are placed in the improvement category if outcome measures indicate that the targeted variables showed improvement following the prevention intervention. Studies are placed in the no change category if outcome measures indicate there have been no changes in the targeted variable from preintervention to postintervention. Finally, studies are placed in the deterioration category if outcome measures indicate that the targeted variables showed deterioration following the prevention intervention.

**Improvement**

For a summary of the results and methodological issues of studies resulting in improvement following intervention see Table 1. Eight of the 16 studies reviewed indicate that the targeted variables showed improvement following intervention. Santonastaso et al. (1999) found their intervention program significantly reduced body dissatisfaction \[F(1,229)=4.33; p=.04\] and decreased the risk of bulimic attitudes in low-risk subjects \[F(1,229)=4.66; p=.03\]. Baranowski & Hetherington (2001) found reductions in dietary restraint \(p<.05\). Moreno & Thelen (1993) found a difference between the experimental and control groups postintervention \(F(6,95)=16.63, p<.001\), indicating that the experimental program was successful in changing participant's knowledge, attitudes, and behavior intentions regarding some aspects of their eating behavior (diet, weight, and purge information).

Shisslak et al. (1990) found evidence for an increase in knowledge regarding eating disorders following their intervention program \(t = 3.3, df = 151, p = .005\), though these
Table 1. Results and Methodologies of Improved

<table>
<thead>
<tr>
<th>Name</th>
<th>n</th>
<th>Control</th>
<th>Random Assign.</th>
<th>Primary vs. Secondary</th>
<th>Length</th>
<th>Follow-up</th>
<th>Type</th>
<th>Improved Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Santonastoaso et al. (1999)</td>
<td>254</td>
<td>Y</td>
<td>Y</td>
<td>P &amp; S</td>
<td>8 hrs.</td>
<td>pre/post 12 mo.</td>
<td>Combined</td>
<td>Body dissatisfaction*</td>
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<td>pre/post 6 mo.</td>
<td>Psychoed.</td>
<td>Attitudes*</td>
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<tr>
<td>Baranowski &amp; Hetherington (2001)</td>
<td>29</td>
<td>Y</td>
<td>N</td>
<td>P</td>
<td>7.5 hrs.</td>
<td>pre/post</td>
<td>Psychoed.</td>
<td>Dietary restraint*</td>
</tr>
<tr>
<td>Moreno &amp; Thelen (1993)</td>
<td>104</td>
<td>Y</td>
<td>N</td>
<td>P</td>
<td>4 ses.</td>
<td>2 days</td>
<td>Psychod.</td>
<td>Knowledge***</td>
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<td>135</td>
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<td>6 ses.</td>
<td>1 mo.</td>
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<td>Attitudes***</td>
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<td>Behavior intentions***</td>
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<td></td>
<td></td>
<td>Knowledge**</td>
</tr>
<tr>
<td>Shisslak et al. (1990)</td>
<td>50</td>
<td>N</td>
<td>N</td>
<td>P</td>
<td>8 ses.</td>
<td>pre/post</td>
<td>Psychod.</td>
<td>Knowledge**</td>
</tr>
<tr>
<td>Franko (1998)</td>
<td>19</td>
<td>Y</td>
<td>N</td>
<td>S</td>
<td>13 hrs.</td>
<td>pre</td>
<td>Combined</td>
<td>Body image concerns**</td>
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<td>2 mo.</td>
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<td>Thin-ideal***</td>
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<td></td>
<td>pre/post 1 mo.</td>
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<td>Body dissatisfaction***</td>
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<td>1 mo.</td>
<td></td>
<td>Bulimic symptomatology*</td>
</tr>
<tr>
<td>Stice et al. (2000)</td>
<td>30</td>
<td>Y</td>
<td>N</td>
<td>S</td>
<td>3 hrs.</td>
<td>pre/post 1 mo.</td>
<td>Dissonance</td>
<td>Thin-ideal***</td>
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<tr>
<td>Stice et al. (2001)</td>
<td>87</td>
<td>Y</td>
<td>Y</td>
<td>S</td>
<td>3 hrs.</td>
<td>pre/post 1 mo.</td>
<td>Dissonance</td>
<td></td>
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<tr>
<td>Sapia (2000)</td>
<td>80</td>
<td>Y</td>
<td>N</td>
<td>P</td>
<td>6 hrs.</td>
<td>pre/post</td>
<td>Sociocultural</td>
<td>Drive for thinness**</td>
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<td></td>
<td></td>
<td>Weight reg.***</td>
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*Note*: *p<.05, **p<.01, ***p<.001.
results were not particularly striking since knowledge is usually increased, but the question of foremost importance is whether that knowledge motivates behavior change. Stice et al. (2001) found evidence for the success of their dissonance-based intervention program, with reported decreases in thin-ideal internalization \([F(2, 148) = 8.68, p < .001]\). Franko (1998) found that participants made positive changes in body image concerns \((z = 2.4, p < .01)\) after participating in their prevention program. Stice et al. (2000) found decreases in thin-ideal internalization \([F(2, 56) = 6.48, p < .001]\), body dissatisfaction \([F(2, 56) = 5.70, p < .001]\), and bulimic symptomatology \([F(2, 56) = 4.08, p < .05]\), following their program. Finally, Sapia (2000) found reductions in drive for thinness \((p < .01)\) and methods of weight regulation \((p < .001)\) following participant's involvement in this prevention program.

\textit{No Change}

For a summary of the results and methodological issues of studies resulting in no change following intervention see Table 2. The outcome measures of 5 of the 16 studies reviewed outcome indicated there had been no changes in the targeted variable from preintervention to postintervention. Huon (1994) indicated there were no significant changes in the discrepancy between actual and ideal weights following the administration of an eating disorder prevention program \((F = 1.3; p > .05)\). Paxton (1993) found that measures of disordered eating and frequency of use of extreme weight loss behaviors were not impacted by the implemented intervention program. Killen et al. (1993) found that while there was a significant increase in knowledge \([F(4, 25) = 40.11; p < .001]\) among adolescents receiving the intervention and a small, but statistically significant effect on body mass index \([F(4, 20) =\)
Table 2. Results and Methodologies of No Change

<table>
<thead>
<tr>
<th>Name</th>
<th>n</th>
<th>Control Group</th>
<th>Random Assign.</th>
<th>Primary vs. Secondary</th>
<th>Follow-up</th>
<th>Length</th>
<th>Approach</th>
<th>No Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Huon (1994)</td>
<td>24</td>
<td>N</td>
<td>N</td>
<td>S</td>
<td>pre/post</td>
<td>2 hrs.</td>
<td>Dissonance</td>
<td>Actual/ideal weight dissonance</td>
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<td></td>
<td>1 mo.</td>
<td>2 hrs.</td>
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<td>Disordered eating</td>
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<td>pre</td>
<td>7.5 hrs.</td>
<td>Combined</td>
<td>Weight loss behavior</td>
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<td>1 mo.</td>
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<td>Attitudes</td>
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<td></td>
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<td></td>
<td>12 mo.</td>
<td></td>
<td></td>
<td>Weight reg.</td>
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<tr>
<td>Killen et al. (1993)</td>
<td>967</td>
<td>Y</td>
<td>Y</td>
<td>P &amp; S</td>
<td>18 wk.</td>
<td>18 ses.</td>
<td>Combined</td>
<td>Restraint</td>
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<td>7 mo.</td>
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<td>Eating concerns</td>
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<td>14 mo.</td>
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<td>Body dissatisfaction</td>
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<td>24 mo.</td>
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<td>Drive for thinness</td>
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<td>6 mo.</td>
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<td>Current/plan weight control</td>
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<td>Stewart et al. (2001)</td>
<td>474</td>
<td>Y</td>
<td>N</td>
<td>P</td>
<td>pre/post</td>
<td>4.5 hrs.</td>
<td>Combined</td>
<td>Restraint</td>
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<td>Current/plan weight control</td>
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<td>Body dissatisfaction</td>
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<td>Drive for thinness</td>
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<td>Current/plan weight control</td>
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6.65, $p<.001$, there were no changes in eating attitudes and unhealthful weight regulation practices, which were the primary variable of interest.

Stewart et al. (2001) found that while there was a small reduction in dietary restraint [$F(2, 800) = 12.8; p < .0001$], shape ($t = 6.9$, df = 400, $p<.0001$), and eating concerns ($t = 5.1$, df = 400, $p<.0001$) immediately following the intervention, this effect was no longer present at 6-month follow-up. Nelson (1996) also failed to find significant differences between pre-and post-treatment data on the following outcome measures: body dissatisfaction, drive for thinness, physical self-esteem, competence, current methods of weight control, and planned methods of weight control.

**Deterioration**

For a summary of the results and methodological issues of studies resulting in deterioration following intervention see Table 3. Two of the 16 studies reviewed showed a deterioration in the outcome measures of interest following intervention, meaning that the targeted variables actually increased in severity. Mann (1995) and Mann et al. (1997) found that their testimonial intervention resulted in participants displaying slightly more eating disorder symptomatology at follow-up compared to controls (effect size = .34). Mann and colleagues hypothesized these disturbing results could have been an effect of the fact that they chose attractive, respected presenters who spoke about their experiences with eating disorders. It is possible that this may have actually reduced the stigma of the disorders and inadvertently had a normalizing effect (Mann et al., 1997).

Carter et al. (1997) found an increase in knowledge and target behaviors and attitudes at postintervention, but subsequently found an increase in dietary restraint (compared to baseline) at 6-month follow-up ($z = 2.04, p = .04$). Carter et al. (1997) note that it would be
inappropriate to generalize from these findings, since they did not incorporate a control group and therefore, it is possible that the observed changes were due to developmental or other extraneous influences rather than the effect of the prevention program.

Summary

An overview of the results from the 16 studies reviewed, reveal that there has been considerable discrepancies among the findings. Half of the studies (n=8) found results indicative of participant improvement on the outcome measures of interest, therefore, indicating the program had been successful. However, the other half (n=8) of the studies reviewed either displayed no change on outcome measures following intervention (n=5) or deterioration following intervention (n=2). The latter finding is particularly disturbing since the aim of the program is prevention and the fact that a prevention program may actually make one more predisposed to developing eating disorder symptoms is alarming. Certainly, these results suggest that further analyses of specific components of the individual programs need to be examined in order to gain additional knowledge regarding the role of key factors in a program’s success or demise.

Conclusions and Recommendations

This review of 16 studies in the eating disorder prevention literature indicates that certain integral steps need to be taken to provide some clarity to the discrepant findings cluttering this area. First and foremost, methodological issues need to be addressed. Researchers need to attend to the following issues: sampling methodology, the use of random assignment and control groups, the nature of the targeted group
Table 3. Results and Methodologies of Deteriorated

<table>
<thead>
<tr>
<th>Name</th>
<th>n</th>
<th>Control Group</th>
<th>Random Assignment</th>
<th>Primary vs. Secondary</th>
<th>Follow-up</th>
<th>Intervention Length</th>
<th>Approach</th>
<th>Detiorated</th>
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</thead>
<tbody>
<tr>
<td>Mann (1995)</td>
<td>788</td>
<td>Y</td>
<td>N</td>
<td>P &amp; S</td>
<td>Not reported</td>
<td>1.5 hrs.</td>
<td>Testimonial</td>
<td>Symptoms (e.s.=.34)</td>
</tr>
<tr>
<td>Mann et al. (1997)</td>
<td>788</td>
<td>Y</td>
<td>N</td>
<td>P &amp; S</td>
<td>Not reported</td>
<td>1.5 hrs.</td>
<td>Testimonial</td>
<td>Symptoms (e.s.=.34)</td>
</tr>
<tr>
<td>Carter et al. (1997)</td>
<td>50</td>
<td>N</td>
<td>N</td>
<td>P</td>
<td>pre/post 6 mo.</td>
<td>6 hrs.</td>
<td>Combined</td>
<td>Restraint (p=.04)</td>
</tr>
</tbody>
</table>
depending on the identified goal of primary versus secondary prevention, movement toward establishing an identified successful intervention length, and appropriate follow-up periods that give adequate time to assess changes in the phenomenon. Second, empirical comparisons need to be conducted evaluating the efficacy of the prominent intervention approaches. Third, empirically validated instruments need to be used extensively to the exclusion of researcher-developed measures with little or no information on reliability and validity. Finally, prevention programs that have revealed unsuccessful findings need to be further examined to identify the problematic aspects leading to the unsuccessful results.

Present Study

The proposed study will attempt to clarify important questions regarding the relative efficacy of the various prevention approaches by providing a direct empirical comparison of the combined psychoeducational/sociocultural approach and the dissonance-based approach. The combined approach was selected as one of the comparison paradigms because it is the most commonly employed prevention intervention paradigm and its success is in need of clarification due to mixed outcome results. The relatively new dissonance-based approach was the second paradigm selected for comparison because it appears to have moderately strong empirical support on a variety of critical outcome measures. However, since application of dissonance-based concepts to eating disorder prevention is a relatively new approach, the effectiveness of this paradigm needs to be explored further.

This study will provide a direct empirical comparison evaluating the relative effectiveness of the dissonance-based approach versus the combined psychoeducational/sociocultural approach in the reduction of eating disorder risk factors. Specifically, differences on five outcome measures examining eating disorder attitudes,
thoughts, and behaviors will be assessed via groups of symptomatic and nonsymptomatic women.

**Hypotheses**

It is predicted that the dissonance-based approach will be proven to be more effective than the combined psychoeducational/sociocultural approach. Specifically, it is anticipated that participants in the dissonance-based group will show lower scores on all measures of eating disorder pathology compared to either the psychoeducational/sociocultural group or the control group. This prediction is based on the strong theoretical underpinnings of the dissonance-based approach. The dissonance-based approach employed in this study relies on the premise articulated in Festinger's classical version of the theory of cognitive dissonance. This theory states that when a person displays attitude-discrepant behavior, psychological discomfort is created and a person is motivated to alter his or her cognitions to restore consistency (Festinger, 1957).

The theory of cognitive dissonance has been applied widely to induce attitude change in a variety of contexts. Its more recent application in the eating disorder arena was preceded by its successful implementation in a prevention program designed to reduce the risk of HIV among college students by promoting condom use. Therefore, its application to the area of prevention and health psychology is not new. Empirical support for the basic tenets of this theory is dense and therefore, it provides a strong theoretical base for the intervention model.

In contrast to the dissonance-based approach, the combined psychoeducational/sociocultural approach is an integration of two intervention approaches that are not based on well-articulated models with clear tenets and logical predictions. The psychoeducational component of this combined model is based on a rational-didactic approach or the KAP
model (Knowledge-Attitude-Practice), which assumes that when people understand potentially detrimental consequences to particular actions, they will no longer display harmful behaviors (Rosenvinge & Borresen, 1999). This model has a relatively weak theoretical base that has generated demonstrably less empirical support than Festinger's dissonance theory.

The sociocultural component of the combined model has also found to have received mixed empirical support in the prevention intervention literature (see Tables 1, 2, and 3). This model is based upon the notion that disordered eating behavior has a sociocultural component, stating that cultural influences support and promote unhealthy attitudes toward food and body image in women (Gold, 1999; Nelson, 1996). Similar to the psychoeducational component, the sociocultural component of the combined approach also has not generated clear predictions or consistent empirical support.

In addition to the questionable aspects of the separate psychoeducational and sociocultural components, the influence of combining these somewhat distinct approaches into one prevention approach has also received mixed empirical support (see Tables 1, 2, and 3). Depending on the research examined, results following a combined intervention approach have ranged from decreases in eating disorder attitudes and behaviors, to no change, to increases in eating disorder risk factors. It is difficult to understand these variable findings because no one model specifies the potential impact of combining the psychoeducational and sociocultural approaches. In particular, it is not specified which factors in a combined approach operate to foster prevention efficacy. In addition, the rationale behind combining the two models has not been specified. Despite the convoluted state of these findings, prevention programs employ the combined approach most frequently.
Therefore, a direct comparison between the combined and the dissonance-based approaches is in order to evaluate which may be most effective in preventing the development of disordered eating behavior and its accompanying pathology.

It is predicted that the group receiving the dissonance-based prevention approach will demonstrate greater decreases in eating disorder attitudes and behaviors compared to either the psychoeducational/sociocultural group or the no-treatment control group. Eating disorder attitudes and behaviors were assessed via five well-established outcome measures frequently employed to assess eating disorder symptomatology and risk factors. In addition, a behavioral measure of dietary restraint was developed by the experimenter for use in this study. Again, lower scores on these measures among the dissonance group at post intervention and 4-week follow-up is a prediction based on the fact that this model has a stronger theoretical base that has received stronger empirical support than the combined psychoeducational/sociocultural intervention.
METHOD

Participants

The final sample consisted of 155 female participants randomly selected from a volunteer participant pool consisting of 597 women enrolled in psychology courses at a large midwestern university. All 597 women in the participant pool completed both a demographic questionnaire (Appendix B) and the Questionnaire for Eating Disorder Diagnoses (Q-EDD) (Mintz, O’Halloran, Mulholland, and Schneider, 1997) (Appendix C) for screening purposes. Persons identified by the Questionnaire for Eating Disorder Diagnoses (Q-EDD) (Mintz et al., 1997) as meeting full diagnostic criteria for an eating disorder were eliminated from the eligible participant pool. Sample size was estimated via an established formula (Appendix D).

Participants’ ages ranged from 17 to 22 years (M = 18.95, SD = 1.01). The racial and ethnic composition of the sample was 87.1% (n = 135) Caucasian, 1.9% (n = 3) African American, 4.5% (n = 7) Asian American, 2.5% (n = 4) Hispanic, and 3.2% (n = 5) other. Slightly more than half the participants (n = 78, 50.3%) were classified as symptomatic according to their Q-EDD scores, which indicates that they displayed some eating disorder attitudes, patterns, and behaviors, but did not meet all DSM-IV eating disorder diagnostic criteria. The remainder of the sample (n = 77, 49.7%) was asymptomatic. The Q-EDD criteria for symptomatic versus asymptomatic status is discussed in the instrument section.

Eligible participants were limited to females only based on prevalence estimates of diagnosed eating disorder pathology provided in the Diagnostic and Statistical Manual of Mental Disorders-Text Revision (DSM-IV-TR; American Psychiatric Association [APA], 2000), which indicate that eating disorders are predominantly female disorders. Participants
received extra credit in their enrolled psychology courses as compensation for participation. All participants were treated in accordance with the “Ethical Principles of Psychologists and Code of Conduct” (American Psychological Association, 1992). This study was reviewed and approved by the Psychology Department Human Participants and University Institutional Research Review Boards (IRB).

Procedures

Upon entrance into the study, participants were randomly assigned to one of three experimental conditions: a no treatment control group, a combined psychoeducational/sociocultural prevention intervention group, or a dissonance-based prevention intervention group. Following group assignments, potential participants were contacted via e-mail to assess their interest in participating in a series of two experiments.

This study involved elements of deception necessary to achieve the aims of the investigation. Specifically, a cover story regarding the true nature of the experiment was employed in order to reduce the potential impact of demand characteristics. Specifically, participants in all experimental conditions were informed that the study consisted of two separate experiments. Participants were advised that the purpose of study one was to enlist the help of college women in the development of a body image/self-esteem enhancement program for young adolescent girls. Participants in the dissonance and combined psychoeducational/sociocultural interventions were informed that this experiment would consist of activities designed to elicit their feedback regarding societal pressures that discourage body image acceptance among adolescent girls. They were notified that study one would be 3 hours in duration (2 hours week one, 1 hour week two).
Participants in the control condition were given the same cover story, but instead were informed that they would be completing a series of measures on body image and self-esteem in order to allow researchers to gain a better understanding of these constructs. It was specified to participants in all conditions that the information they provided would be valuable in enabling researchers to develop more effective body image/self-esteem enhancement programs for adolescent girls.

A description of the second study was also provided prior to the beginning of the experiment. Participants in all conditions were informed that the two experiments were being combined for convenience purposes, since they shared a similar aim of exploring mental health issues among adolescent girls and college-aged women. Researchers explained that the purpose of the second study was to evaluate the impact of mood on mental health and self-image among college women. Participants were informed that study two would involve completing a series of experimental measures assessing mood, self-image, and general mental health issues.

Participants in dissonance and combined psychoeducational/sociocultural conditions were informed that the duration of study two would be 1 hour. Participants in the control condition were informed that studies one and two were combined and that the total time required to complete both studies would be one hour. Participants in all conditions were informed that there would be a 1-hour follow-up session to study two to be conducted in four weeks. Therefore, the total time commitment for participants in the dissonance and psychoeducational/sociocultural conditions was 5 hours (two weekly 2-hour sessions, 1-hour session at 4-week follow-up). The total time commitment for participants in the control condition was 2 hours (initial 1-hour session, 1-hour session at 4-week follow-up).
Standard Prevention Intervention Procedures: Dissonance and Psychoeducational/Sociocultural Groups

This portion of the procedures section will review standard procedures implemented in both the dissonance-based and the psychoeducational/sociocultural interventions. The only differences among the two prevention paradigms reflect experimental manipulations performed on the following three variables: perceived voluntary participation, expectation of public expression of views versus anonymity and privacy, and effort expenditure. Specifically, manipulations were performed to increase the perception of voluntary participation, expectation that views would be expressed publicly, and the perception that a high level of effort had been expended among participants in the dissonance-based group. Therefore, manipulations in the psychoeducational/sociocultural prevention condition focused on fostering a lower perception of voluntary participation, an expectation that views would be kept anonymous or private, and comparatively lower effort expenditure.

The specific experimental manipulations implemented in order to achieve these aims will be reviewed in the next section. This section will focus only on aspects of the prevention intervention paradigm that were consistent across the dissonance-based and psychoeducational/sociocultural conditions.

Participants in the two intervention groups met for two consecutive weeks for a total of four hours. In addition, they participated in a one-hour 4-week follow-up session, so the total intervention length was five hours. Five hours was selected because it closely approximates the mean calculated intervention length of the 16 prevention studies reviewed above (x = 5.1 hours). Two female graduate students in counseling psychology trained to administer the prevention programs led the intervention groups. Both experimenters were
trained to systematically implement a structured set of experimental procedures. Training procedures and experimenter’s instructions are included in Appendix E for the dissonance-based condition and in Appendix F for the psychoeducational/sociocultural condition. The sequence of experimental activities is presented in Appendix G and is described in detail in the remainder of this section.

The eight sequential events in session one are as follows: 1) completion of informed consent (4 minutes), 2) experimental instructions (1 minute), 3) completion of Rosenberg Self-Esteem Scale and Multidimensional Relationship Questionnaire (20 minutes), 4) lecture on hazards of thin-ideal (30 minutes), 5) completion of counterattitudinal essays (30 minutes), 6) completion of Perceived Arousal Scale and PANAS (5 minutes), 7) completion of counterattitudinal responses to thin-ideal endorsement statements (20 minutes), and 8) instructions for optional homework activity (5 minutes).

Informed Consent and Experimental Instructions

At the beginning of the initial meeting (session one, week one), all participants read and signed the informed consent statement (Appendix H). Following the completion of informed consent documents, participants were read a brief experimental introduction describing the nature of study one (dissonance, Appendix I; psychoeducational/ sociocultural, Appendix J).

Rosenberg Self-Esteem Scale and Multidimensional Relationship Questionnaire

Next, participants in both the dissonance and the psychoeducational/sociocultural groups completed the Rosenberg Self-Esteem Scale (Rosenberg, 1965) (Appendix K) and the Multidimensional Relationship Questionnaire (MRQ; Snell, Schicke, & Arbeiter, 1996)
These measures were included for purposes of future research and therefore, were not of direct interest in the present study.

Lecture: Hazards of Thin-Ideal

After completing these two measures, the experimenters delivered a 30-minute lecture discussing the hazards associated with the thin-ideal. The nature of this presentation was similar to information that Stice & Shaw (1994) suggested should be included in eating disorder prevention paradigms. First, the cultural origins of the thin-ideal were discussed and the discrepancies between biological reality and the promoted ideal were explored. Second, the detrimental impact of the thin-ideal on the psychological and physical well-being of women and girls was emphasized. Third, methods designed to reduce internalization of the thin-ideal and increase body acceptance and satisfaction were discussed.

Counterattitudinal Essay

Following the lecture portion of the experiment, participants were instructed to complete a counterattitudinal essay describing the hazards associated with the thin-ideal. They were advised that the focus of their essays should revolve around discouraging the acceptance of this ideal (dissonance, Appendix M; psychoeducational/sociocultural, Appendix N). They were instructed to take 30 minutes to complete this activity.

Arousal Scale and PANAS

Next, participants were told they would be completing measures for study two, to be held at the end of the following week’s session. They were reminded that study two was evaluating the impact of mood on self-image and mental health and were informed that the measures would provide preliminary data for the experiment. This cover story was implemented to disguise the true purpose of administering the measures, which was to assess
level of arousal. Cognitive dissonance theory would predict that writing a counterattitudinal essay should incite a high level of arousal and therefore, the Perceived Arousal Scale (Anderson, Deuser, & DeNeve, 1995) (Appendix O) was administered to assess level of arousal. In addition, the Positive and Negative Affect Scale (Watson, Clark, & Tellegen, 1988) (Appendix P) was also embedded in the items in order to make the cover story seem more convincing. Participants were given 5 minutes to complete these measures.

Counterattitudinal Responses to Thin-Ideal Endorsing Statements

Following completion of these measures, participants were instructed to develop brief (2-5 sentence) responses to 15 statements that endorsed the thin-ideal (dissonance, Appendix Q; psychoeducational/sociocultural, Appendix R). Specifically, they were told that their response should oppose the position offered by each of the statements, thereby denouncing the thin-ideal and encouraging unconditional body acceptance. They were allotted 20 minutes for the completion of this activity.

Optional Homework Activity

After this activity, participants were read instructions pertaining to an optional homework activity that was to be completed over the course of the week (prior to session two) (dissonance, Appendix S; psychoeducational/sociocultural, Appendix T). Specifically, they were told to record either two (psychoeducational/sociocultural) or all (dissonance) of their negative body image thoughts for this 1-week period. Additionally, they were instructed that they should develop and record a positive self-statement to refute the negative thought. Participants were informed that there would be one extra credit point offered for completion of this optional activity and were instructed to bring their thought records to the beginning of next week’s session.
The seven sequential events in session two are as follows: 1) turn in optional homework activity (1 minute), 2) letter responses (30 minutes), 3) completion of Perceived Arousal Scale, PANAS, and experimenter developed measure evaluating cognitive dissonance (5 minutes), 4) discussion activity (20 minutes), 5) experimental packet collection and behavioral measure of dietary restraint (4 minutes), 6) relocating rooms and instructions for experiment two (5 minutes), and 7) completion of five experimental measures outcome measures (BDI-II, DRES, BAAS, EDE-Q, IBSS-R) (55 minutes).

Optional Homework and Letter Responses

At the beginning of session two (week two), participants turned in their optional homework activities and were instructed to spend the first 30 minutes of the session responding to letters that experimenters had received from adolescent girls concerning their own personal body image struggles (dissonance, Appendix U; psychoeducational/sociocultural, Appendix V). Participants in the dissonance group were given a choice of letters to respond to (Appendix U), but participants in both conditions were instructed to take a stance that advocated against the thin-ideal if they chose to respond to the body image scenario.

Perceived Arousal Scale, PANAS, and Experimenter Developed Dissonance Measure

Next, participants were informed that they would be completing another measure in preparation for experiment two. Again, they were administered items from the Perceived Arousal Scale (Anderson, Deuser, & DeNeve, 1995) and the Positive and Negative Affect Scale (Watson, Clark, & Tellegen, 1988). Cognitive dissonance theory would predict that arousal would decrease as attitudes were changed to reduce the perceived attitude-behavior discrepancy. Therefore, it was predicted that if participants in the
dissonance group experienced more attitudinal change, they would exhibit greater decreases in their arousal scores compared to participants in the psychoeducational/sociocultural condition. In addition, participants were administered a 6-item experimenter developed measure designed to evaluate whether cognitive dissonance had successfully been engendered in the dissonance-based condition. Participants were allotted 5 minutes for the completion of these measures.

*Thin-Ideal Discussion Group*

Next, participants were informed that the final component of experiment one was a 30-minute discussion in which they were instructed to denounce the thin-ideal. The experimenter stated that she would remain quite during this portion in order to allow them to fully express their perspectives. Again, the specific nature of the instructions varied in each group according to experimental manipulations implemented to examine variables of interest (dissonance, Appendix W; psychoeducational/sociocultural, Appendix X), but the basic nature of the activity (i.e., discussion group focused on denouncing the thin-ideal) remained consistent across groups.

*Behavioral Measure of Dietary Restraint*

Following the discussion group conclusion, participants were informed that this was the conclusion of study one. They were instructed to bring their experimental packets to the front of the room and at this point, the behavioral measure of dietary restraint was administered. Participants were given a cover story that the experimenter had fruit and candy left over from an experiment ran earlier in the day and were informed that they were welcome to take as much as they would like. Then, while pretending to inspect the experimental materials, experimenters watched and recorded participants’ food selections.
Study Two: Completion of Experimental Measures

Next, the experimenter escorted participants to another room in which a different experimenter was waiting and then, they received instructions reminding them that in this experiment they would be completing a series of measures to assess the impact of mood on self-image and well-being. Participants completed the five following experimental measures: Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996) (Appendix Y); Dutch Restrained Eating Scale (DRES; Van Strien, Frijters, Van Staveren, Defares, & Deurenberg, 1986) (Appendix Z); Beliefs About Appearance Scale (BAAS; Spangler & Stice, 2001) (Appendix AA); Ideal-Body Stereotype Scale - Revised (IBSS-R; Stice, Ziemba, Margolis, & Flick, 1996) (Appendix BB); and the Eating Disorder Examination-Questionnaire (EDE-Q; Fairburn & Cooper, 1993) (Appendix CC). Participants then returned at a 4-week experiment follow-up period and completed the five measures a second time.

Control Group Procedures

The sequence of experimental activities for the control group is outlined in Appendix DD. Participants in the control condition met for an initial one-hour session and a one-hour follow-up session.

Session One

At the beginning of the initial meeting, control group participants completed the informed consent document and were reminded that the study consisted of two studies, one developing a self-esteem/body image enhancement program for adolescent girls and one examining the impact of mood on self-image and well-being. Then, participants completed the seven following experimental measures: Rosenberg Self-Esteem Scale (Rosenberg, 1965) (Appendix K); Multidimensional Relationship Questionnaire (MRQ; Snell, Schicke, &
Arbeiter, 1996) (Appendix L); Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996) (Appendix Y); Dutch Restrained Eating Scale (DRES; Van Strien, Frijters, Van Staveren, Defares, & Deurenberg, 1986) (Appendix Z); Beliefs About Appearance Scale (BAAS; Spangler & Stice, 2001) (Appendix AA); Ideal-Body Stereotype Scale (IBSS-R; Stice, Ziemba, Margolis, & Flick, 1996) (Appendix BB); and the Eating Disorder Examination-Questionnaire (EDE-Q; Fairburn & Cooper, 1993) (Appendix CC). The Rosenberg Self-Esteem Scale (Rosenberg, 1965) (Appendix K) and the Multidimensional Relationship Questionnaire (MRQ; Snell, Schicke, & Arbeiter, 1996) (Appendix L) were included for purposes of future research and therefore, were not of direct interest in the present study.

4-Week Follow-Up

Control group participants then returned for a one-hour session at 4-week follow-up and completed the following five measures a second time: Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996) (Appendix Y); Dutch Restrained Eating Scale (DRES; Van Strien, Frijters, Van Staveren, Defares, & Deurenberg, 1986) (Appendix Z); Beliefs About Appearance Scale (BAAS; Spangler & Stice, 2001) (Appendix AA); Ideal-Body Stereotype Scale (IBSS-R; Stice, Ziemba, Margolis, & Flick, 1996) (Appendix BB); and the Eating Disorder Examination-Questionnaire (EDE-Q; Fairburn & Cooper, 1993) (Appendix CC). Again, a copy of the entire experiment schedule for the control condition is provided in Appendix DD.

Experimental Manipulations

This section will review the experimental manipulations employed to systematically examine the impact of variables distinguishing the dissonance and psychoeducational/
sociocultural prevention approaches. The dissonance-based prevention program employed in this experiment is based on Festinger’s theory of cognitive dissonance, which states that when a person holds inconsistent cognitions psychological discomfort is created and the person is motivated to alter his or her cognitions to restore consistency (Festinger, 1957; Festinger & Carlsmith, 1959; Stice et al., 2001). The classical version of dissonance theory posits that attitudinal changes occur when dissonance is present because a person has engaged in a behavior that is inconsistent with his or her beliefs. Furthermore, dissonance theory predicts that people are intrinsically motivated to reduce the psychological tension referred to as dissonance. Since frequently people are unable to deny or retract previous inconsistent behavior, they are then motivated to change their attitudes so they are more closely aligned with their behavior (Festinger, 1957; Festinger & Carlsmith, 1959).

The dissonance-based intervention in this study was based upon this classical notion. Based on previous research (Stice & Shaw, 1994), it was assumed that many college women participating in this study would initially hold attitudes that supported the thin-ideal (i.e., the notion that all women should aspire to attain an ultra-thin body type). Therefore, it was predicted that as participants engaged in activities and behaviors advocating against the thin-ideal, they would experience dissonance due to a discrepancy between their attitudes and behaviors. Since participants are unable to retract their previous behavior (advocating against the thin-ideal in the experiment), it was predicted that these women would be motivated to change their attitudes. Specifically, it was assumed that participants in the dissonance condition would alter their attitudes and would less willing to subscribe to the thin-ideal and therefore, be less likely to show the eating disorder attitudes and behaviors that accompany the subscription to this ideal.
Voluntary versus Involuntary Manipulations

Festinger & Carlsmith (1959) identified certain conditions under which it is most likely that cognitive dissonance will be high and therefore are necessary components in order to incite attitude change. First, it is required that the inconsistent behavior or attitude is perceived to be under the person’s voluntary control. If the person attributes the attitude-discrepant behaviors to environmental pressures, then it is unlikely that dissonance will be invoked. Therefore, it was imperative in this experiment that participants felt that their participation was voluntary and the attitudes they expressed were of their own volition.

Experimental manipulations embedded in the dissonance-based intervention focused on inducing the perception that all activities were entirely voluntary. This was done in a variety of ways. First, during the initial session the experimenters read a series of instructions that emphasized that participation in this experiment was completely voluntary and that it was important that each participant feel committed to the cause if they elected to continue (Appendix I). They were notified that they could discontinue the experiment at any time if they were questioning their commitment. This specific set of instructions was not included in the combined psychoeducational/sociocultural approach (Appendix J).

Other manipulations were made within the dissonance-based intervention to reiterate regularly that each activity was voluntary. For example, during the essay portion participants were given an option of writing an essay that advocated against the thin-ideal or writing on another topic. It was specified that there was relatively less information available on the topic addressing the thin-ideal, but immediately following this specification it was again reiterated that the choice of essay topics was completely their own (Appendix M). This alternative was not provided in the combined psychoeducational/sociocultural group.
(Appendix N), as participants in this group received the exact same instructions, but were not given a topic option. An option of topic choices was also present in the letter writing scenario for the dissonance group (Appendix U), but not for the psychoeducational/sociocultural group (Appendix V).

Additional manipulations to induce higher perceptions of voluntariness in the dissonance-based group were made during the following portions of the experiment: counterattitudinal responses to thin-ideal statements, optional homework activity, and the discussion group. In writing counterattitudinal responses to 15 thin-ideal statements, participants in the dissonance-based condition were offered $1 for their participation or were given the option of electing not to participate (Appendix Q). Participants in the psychoeducational/sociocultural condition were offered $5 for their participation (Appendix R). Therefore, it is assumed that participants in the psychoeducational/sociocultural group would perceive their actions during this activity to be less voluntary in nature, since a larger monetary compensation was offered.

In addition, the optional homework activity offered participants in the dissonance-based condition (Appendix S) a smaller compensation for a larger amount of work compared to participants in the psychoeducational/sociocultural group (Appendix T). It was assumed that this discrepancy would make it more likely that participants in the dissonance-based group would believe that their participation in this activity was voluntary. Finally, participation in the final discussion denouncing the thin-ideal was optional for participants in the dissonance-based condition (Appendix W). Participants in the psychoeducational/sociocultural condition were informed that their participation was
necessary in order to assess how much they had learned during the experiment regarding the hazards associated with this ideal (Appendix X).

Public versus Private Manipulations

A second critical component of dissonance theory is that the attitude-discrepant behavior is expressed publicly (Festinger & Carlsmith, 1959). The thought underlying this tenet is that if the expression is private the person will be more likely to deny its occurrence. However, when it is made public and therefore is undeniable, the person must actively confront the dissonance produced by the discrepancy.

In order to meet this criterion, participants in the dissonance-based interventions were told at various points throughout the experiment that their views would be expressed publicly to young adolescent girls during the body image/self-esteem enhancement programs (Appendices I, M, U, Q, S, W). In fact, every experimental activity contained explicit instructions reiterating this point. In addition, participants in the dissonance condition were required to write letters to adolescent girls and reveal their identities in the signature portion of these letters. Finally, they were led to believe that they were being videotaped during various portions of the experiment and each participant provided written consent for experimenters to show portions of this videotape during the body image/self-esteem enhancement programs. Therefore, every effort was made to ensure that participants in the dissonance group believed their opinions would be expressed publicly.

Participants in the sociocultural/psychoeducational condition, on the other hand, were led to believe that their responses would be kept completely anonymous. Instructions embedded in every experimental activity consistently assured participants of this fact (Appendices J, N, V, R, T). In addition, they were not required to sign their names to letter
responses (Appendix V) and they were not led to believe that the final discussion would be videotaped (Appendix X). Therefore, every effort was made to ensure that participants in the psychoeducational/sociocultural group would believe that their responses were anonymous or would be kept private.

*High Effort versus Low Effort Manipulations*

Since its original conceptualization, many theorists have elaborated extensively on the components necessary to incite a high level of cognitive dissonance (Aronson & Mills, 1959; Axsom & Cooper, 1985; Baumeister, 1982; Baumeister & Tice, 1984; Cooper & Fazio, 1984; Stone & Cooper, 2001). One idea discussed by numerous researchers is the notion that expending a high level of effort will lead to a higher level of cognitive dissonance and therefore, a greater amount of subsequent attitude change (the effort justification hypothesis). The notion underlying this hypothesis is that people will alter their attitudes to justify their suffering if a high level of exertion is expended. Several studies have found support for this hypothesis (e.g., Aronson & Mills, 1959; Axsom, 1989; Axsom & Cooper, 1985).

The present study included experimental manipulations to induce a perception among participants in the dissonance-based condition that they exerted a high level of effort. Each experimental activity contained instructions encouraging participants to expend a high level of effort (Appendices M, U, Q, S, W). For example, initial instructions for the dissonance-based group stated, “We request that you invest a lot of effort in the activities in this experiment so we can capitalize on your knowledge and produce a high quality program that will be maximally beneficial to young girls struggling with body image and self-esteem issues.” Instructions in different activities varied somewhat in the language employed, but
the tone consistently encouraged a high level of effort expenditure. Similarly, the optional homework activity in the dissonance-based group required participants to record every instance of negative body self-talk that they experienced for an entire week (Appendix S). Then, for each thought logged, they were directed to develop a positive statement to refute or replace the negative one. Presumably, this required a high level of effort, especially for the symptomatic portion of the sample for whom such thoughts may be frequent.

The focus on fostering effort expenditure in the psychoeducational/sociocultural group was far less effort in comparison to the dissonance-based group. For example, during the optional homework activity members in the psychoeducational/sociocultural group were required to record only two negative body thoughts and positive refutes over a one-week duration (Appendix T). In addition, there were no explicit instructions to expend a high level of effort embedded in any of the experimental activity descriptions for the psychoeducational/sociocultural group. Therefore, it was anticipated that they would engage in a lower level of effort expenditure and subsequently, be less likely to engage in attitude change according to the effort justification theory (Aronson & Mills, 1959; Axsom, 1989; Axsom & Cooper, 1985).

**Instruments**

This study focused on evaluating the impact of type of prevention program on the five following constructs: eating disorder symptoms, self-esteem, depression, restrained eating, appearance emphasis, and thin-ideal internalization. This section will review the six measures used to operationalize these constructs. In addition, a screening measure used to provide an initial measure of eating disorder symptomatology will be discussed. A summary of this methodology is provided in Table 4.
Table 4. Methodology

<table>
<thead>
<tr>
<th>Group Assignment</th>
<th>Dependent Variable</th>
<th>Measures</th>
</tr>
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<tr>
<td>Control</td>
<td>Eating Disorder Symptoms</td>
<td>Questionnaire for Eating Disorder Diagnoses (screening); Eating Disorder Examination-Questionnaire</td>
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<tr>
<td>Dissonance-Based</td>
<td>Self-Esteem</td>
<td>Rosenberg Self-Esteem Scale</td>
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<tr>
<td>Combined</td>
<td>Depression</td>
<td>Beck Depression Inventory – II</td>
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<td></td>
<td>Restained Eating</td>
<td>Dutch Restrained Eating Scale; Experimenter Developed Measure of Dietary Restraint</td>
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<tr>
<td></td>
<td>Appearance Emphasis</td>
<td>Beliefs About Appearance Scale</td>
</tr>
<tr>
<td></td>
<td>Thin-ideal Internalization</td>
<td>Ideal-Body Stereotype Scale-Revised</td>
</tr>
</tbody>
</table>

*Screening Measure: Questionnaire for Eating Disorder Diagnoses*

The Questionnaire for Eating Disorder Diagnoses (Q-EDD; Mintz, O’Halloran, Mulholland, & Schneider, 1997) (Appendix C) was administered to the initial participant pool in order to eliminate persons meeting full diagnostic criteria for eating disorders from the final sample. In addition, it was used to assign final sample participants to either a symptomatic or asymptomatic category. The Q-EDD operationalizes eating disorder criteria of the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders and differentiates a) between those with and without an eating disorder diagnosis, b) among eating-disordered, symptomatic, and asymptomatic individuals, and c) between those with anorexia and bulimia diagnoses (Mintz et al., 1997).

The Q-EDD is a 50-item self-report questionnaire that produces both frequency data for individual eating disorder behaviors (e.g., self-induced vomiting) and categorical labels.
(e.g., eating disordered and non-eating disordered). Categorical labels are assigned through flow-chart decision rules, in which individual (yes or no) responses to diagnostic criteria are analyzed to determine whether or not diagnostic criteria are met. Persons not meeting full diagnostic criteria, but answering yes to some individual items are placed in the symptomatic category. The Q-EDD is proven to have good convergent validity when compared to the revised Bulimia Test (BUILT-R; Thelen, Farmer, Wonderlich, & Smith, 1991) used to assess bulimic symptoms and the Eating Attitudes Test (EAT; Garner & Garfinkel, 1979) used to assess anorexic symptoms (Mintz et al., 1997). One to three month test-retest reliability statistics were as follows: a) eating-disordered and non-eating-disordered groups $\kappa = .64$ (19 changes between the eating-disordered and non-eating disordered categories in 1-3 month follow-up period) and b) eating disordered, symptomatic and asymptomatic groups $\kappa = .54$ (14 changes between the asymptomatic and symptomatic categories, 13 changes between the symptomatic and eating-disordered categories, and 6 changes between the asymptomatic and eating-disordered categories.

Rosenberg Self-Esteem Scale

The Rosenberg Self-Esteem Scale (Appendix K) is a 10-item self-report questionnaire often used as a standard measure of self-esteem, where a higher score reflects lower self-esteem (Rosenberg, 1965). The Rosenberg Self-Esteem Scale is a measure of general self-esteem that has a high internal consistency (alpha = .87) and a test-retest reliability of .85 at two weeks (Rosenberg, 1965; Wylie, 1989). Self-esteem is an important variable to examine in this study because it has been found to be correlated with eating disorder pathology (Shisslak, Pazda, & Crago; 1990).
Eating Disorder Examination-Questionnaire

The Eating Disorder Examination-Questionnaire (EDE-Q; Fairburn & Cooper, 1993) (Appendix CC) is a self-report version of the structured clinical interview, the Eating Disorder Examination, which provides a quantitative measure of symptoms characteristic of eating disorders, including binge eating, purging, dieting, and loss of control over eating. The Eating Disorder Examination is considered, "...the gold standard in standardized instruments for the assessment of eating disorders" (Mann, Nolen-Hoeksema, Huang, Burgard, Wright, & Hanson, 1997, p.218), and the EDE-Q has been validated against it (Fairburn & Beglin, 1994). The EDE-Q has demonstrated the ability to provide a good measure of a variety of eating disorder symptomatology (Black & Wilson, 1996; Fairburn & Beglin, 1994; Wilfley, Schwartz, Spurrell, & Fairburn, 1997). It yields measures of key eating disorder characteristics (i.e., frequency of symptomatic behavior, levels of dietary restraint, and concerns regarding shape, weight, and eating) through subscales and also provides a global score of eating disorder symptomatology.

The EDE-Q consists of 38 questions scored on the five following subscales: Restraint, Eating Concern, Overeating, Shape Concern, and Weight Concern. Possible values on EDE-Q subscales range from 0 to 6, with higher scores indicating more eating disorder symptomatology. The mean of the average scores of the four subscales is calculated to determine the global score. The reliability and validity of the EDE-Q have been well-documented (Black & Wilson, 1996; Fairburn & Beglin, 1994).

Ideal-Body Stereotype Scale-Revised

The Ideal-Body Stereotype Scale-Revised (IBSS-R; Stice, Ziemba, Margolis, & Flick, 1996) (Appendix BB) is a 10-item self-report measure of thin-ideal internalization. A
sample item from this scale is the following: Slender women are more attractive (Stice et al., 1996). It is used to assess the degree to which participants subscribe to the media’s portrayal of feminine beauty, which is centered on thin body images. Participants indicate how much they endorse each item in the scale on a 5-point scale ranging from strongly disagree (1) to strongly agree (5). Lower scores indicate less internalization of society’s ultra-thin body-type ideal. The scale possessed acceptable internal consistency (alpha = .94), test-retest reliability (r = .90), and convergent and predictive validity (Stice & Agras, 1998).

**Dutch Restrained Eating Scale**

The Dutch Restrained Eating Scale (DRES; Van Strein, Frijters, Van Staveren, Defares, & Deurenberg, 1986) (Appendix Z) is a 10-item self-report measure used to assess dieting. Participants convey the frequency of dieting behaviors based on a 5-point scale format, with responses ranging from never to always. Higher numbers indicate higher levels of restrained eating. Research has demonstrated this scale has a high internal consistency (α = .95) and good criterion validity, as it has been shown to correlate highly with actual caloric intake (Stice & Agras, 1998; Van Strein et al., 1986; Wardle & Beales, 1987).

**Behavioral Measure of Dietary Restraint**

The behavioral measure of dietary restraint was developed for the purposes of this experiment, therefore no psychometric data are available for this measure. It consisted of allowing participants in the dissonance and psychoeducational/sociocultural groups to select from various food choices following the midpoint of the second experimental session (end of study one). Specifically, participants could elect to take candy or fruit as they exited the experiment. Food selections were then coded on a 7-point scale where 1 represented that
they elected to take no food and 7 indicated that they took multiple pieces of both candy and fruit. Therefore, lower scores indicate a higher level of dietary restraint.

Beliefs About Appearance Scale

The Beliefs About Appearance Scale (Spangler & Stice, 2001) (Appendix AA) is a 20-item self-report measure designed to measure dysfunctional attitudes about bodily appearance. It is rated on a 5-point scale and higher numbers indicate higher levels of appearance-related attitude dysfunction. Research has demonstrated that this scale exhibits high internal consistency (α = .94-.96), good construct validity, good discriminant validity, and good predictive validity (Spangler & Stice, 2001). Test-retest reliability of the BAAS was r(219) = .73, p < .0001 over 10-months and r(115) = .83, p < .0001 over 3 weeks. It was included as a measure in the study because eating disorder attitudes and behaviors are highly correlated with dysfunctional attitudes concerning appearance (Fairburn, Marcus, & Wilson, 1993; Spangler, 1999).

Beck Depression Inventory-II

The Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996) is a 21-item self-report measure of depression. It is rated on a 4-point scale ranging from 0 to 3, with higher numbers indicating higher levels of depression. The BDI-II correlates strongly (.84-.93) with its widely researched predecessor the BDI (Beck et al., 1996). Reliability of the BDI-II is high (split-half reliability: α = .91; 1-week test-retest reliability = .93-.96) (Beck et al., 1996; Sprinkle, Lurie, Insko, Atkinson, Jone, Logan, & Bissada, 2002). The BDI-II was included as a measure in this study because depression has shown to correlate highly with the presence of eating disorder attitudes and behaviors (Stice & Shaw, 1994).
Internal Manipulation Checks

Two measures were included to evaluate whether cognitive dissonance was successfully manipulated. These measures were the Perceived Arousal Scale (Anderson, Deuser, & DeNeve; 1995; Appendix O) and a 6-item experimenter developed measure designed to assess the 3 variables manipulated to engender cognitive dissonance in this study (voluntary, public, high effort).

**Perceived Arousal Scale**

The Perceived Arousal Scale (Anderson et al., 1995) is a 24-item scale consisting of 24 adjectives, 14 of which reflect low arousal and 10 of which reflect high arousal. Participants completing the measure are instructed to circle a number that depicts the extent to which a given adjective is an accurate depiction of the way they are feeling at that very moment. It is scored on a 5-point Likert scale ranging from 1 = very slightly or not at all to 5 = extremely. Higher scores indicate higher levels of arousal. The internal consistency of the PAS is high (Cronbach’s alpha = .93). However, the scale has not been extensively researched and therefore, not a lot of other psychometric data is available.

The Perceived Arousal Scale (Anderson et al., 1995) was administered because it was predicted that participants in the dissonance-based condition would display lower scores on this measure during the second experimental session compared to participants in the psychoeducational/sociocultural condition. This prediction was based on the fact that if participants in the dissonance-based condition did resolve the attitude/behavioral inconsistency by bringing their attitudes and behaviors more closely in line, they should experience less arousal.
Experimenter Developed Cognitive Dissonance Measure

A 6-item experimenter developed measure was used to evaluate the degree of cognitive dissonance experienced in the dissonance-based and psychoeducational/sociocultural conditions (Appendix EE). The first 3 items included in the measure were of interest and the final 3 items were included as distractor items. The three items of interest assessed the three variables manipulated to engender cognitive dissonance in the study and therefore, evaluated the following: 1) degree to which participants felt free to voluntarily express their views (voluntary vs. involuntary) 2) degree to which participants expended a high degree of effort in experiment activities (high effort vs. low effort), and 3) degree to which participants felt their perspectives would be shared with others (public vs. private). Responses were made on a 5-point Likert scale, with higher numbers reflecting higher endorsement of dissonance components (public, voluntary, high effort). It was assumed that participants in the dissonance-based condition would exhibit higher scores on this measure. Since this measure was developed for the purposes of this experiment, no psychometric data is available.

Analyses

First, in order to test the MANOVA assumption of homogeneity of variance, Levene’s test for equality of variance was conducted to compare the variances of the six groups (i.e., symptomatic dissonance, asymptomatic dissonance, symptomatic psychoeducational/sociocultural, asymptomatic psychoeducational/sociocultural, symptomatic control, asymptomatic control) on the six dependent measures. Second, descriptive statistics were analyzed and distributions explored to assure that the MANOVA assumption specifying normality of distributions could also be met.
Third, two additional MANOVAS were performed to 1) explore possible differences in sample equivalence in three demographic variables assessed across four experimental stages, and 2) to explore differences between the asymptomatic and symptomatic portions of the sample on three demographic variables. Fourth, test-retest reliability estimates were computed for all five measures administered to the control group at both postintervention and 4-week follow-up. Fifth, intercorrelations between measures were calculated. Sixth, a preliminary MANOVA was conducted to explore whether there was an experimenter effect. Seventh, two ANOVAs were performed to inspect potential group differences (dissonance-based versus psychoeducational/sociocultural) on two internal manipulation checks designed to evaluate whether conditions for cognitive dissonance had been successfully met.

Eighth, two preliminary 3 (group: control, dissonance-based, psychoeducational/sociocultural) x 2 (symptomatic status: symptomatic, asymptomatic) multivariate analyses of variance (MANOVAS) were conducted on both postintervention and 4-week follow-up measures. Ninth, two subsequent 2 (group: dissonance-based, psychoeducational/sociocultural) x 2 (symptomatic status: symptomatic, asymptomatic) multivariate analyses of variance (MANOVAS) were conducted on both postintervention and 4-week follow-up measures to explore potential differences between the efficacy of the dissonance-based and psychoeducational/sociocultural conditions in reducing eating disorder attitudes and behaviors on the six postintervention outcome measures (EDE-Q, DRES, BAAS, IBSS-R, BDI-II, and a behavioral measure of dietary restraint) and the five follow-up outcome measures (EDE-Q, DRES, BAAS, IBSS-R, and BDI-II). Finally, appropriate contrasts consistent with a 2 x 3 factorial were performed to further examine differences present at postintervention.
RESULTS

Descriptive Statistics

Several initial analyses were performed in order to ensure that statistical assumptions for the performance of MANOVA analyses could be met. First, Levene’s test for homogeneity of variance was conducted in order to inspect potential differences among the variances of the six groups. Results indicated that this test was not statistically significant for four of the six measures examined. It was statistically significant for the experimenter-developed behavioral measure of dietary restraint and for the Beck Depression Inventory-II. Therefore, equal variances among groups could not be assumed on these two measures and subsequent analyses reflected this fact. Next, the distributions of each independent variable were examined to determine if the normality assumption could be met. An inspection of the distributions of the residuals, skewness, and kurtosis statistics indicated that all values were in the acceptable range (Appendix FF). Therefore, it was determined that all MANOVA assumptions had been successfully met.

Next, the means and standard deviations for each experimental measure were examined. Table 5 provides a summary of the means and standard deviations for each of the six outcome measures by group and symptomatic status at postintervention. Table 6 provides a summary of the means and standard deviations for each of the five outcome measures (behavioral measure of restraint not administered) by group and symptomatic status at 4-week follow-up.
Table 5. Means and Standard Deviations By Group and Symptomatic Status at Postintervention

<table>
<thead>
<tr>
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<th>Symptomatic</th>
<th>Asymptomatic</th>
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</thead>
<tbody>
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<td>M</td>
<td>SD</td>
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<tr>
<td>Dissonance</td>
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<tr>
<td>1) EDE-Q</td>
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<td>2) BDI-II</td>
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<tr>
<td>3) DRES</td>
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</tr>
<tr>
<td>4) BAAS</td>
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<td>.87</td>
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<tr>
<td>5) IBSS-R</td>
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<td>.55</td>
</tr>
<tr>
<td>6) Behavioral Measure</td>
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<td>1.66</td>
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<td>1) EDE-Q</td>
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<td>2) BDI-II</td>
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<td>4) BAAS</td>
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<td>5) IBSS-R</td>
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<td>.41</td>
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<tr>
<td>6) Behavioral Measure</td>
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<td>.73</td>
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<tr>
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<td>2) BDI-II</td>
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<td>4) BAAS</td>
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<td>.87</td>
</tr>
<tr>
<td>5) IBSS-R</td>
<td>3.76</td>
<td>.51</td>
</tr>
</tbody>
</table>

*Note:* Eating Disorder Examination-Questionnaire (EDE-Q), Beck Depression Inventory-II (BDI-II), Dutch Restrained Eating Scale (DRES), Beliefs About Appearance Scale (BAAS), Ideal Body Stereotype Scale-Revised (IBSS-R), and Behavioral Measure of Dietary Restraint (Beh Meas).
<table>
<thead>
<tr>
<th>Group</th>
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<th>Asymptomatic</th>
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<tbody>
<tr>
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<td>SD</td>
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<tr>
<td>Dissonance</td>
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<td>1) EDE-Q</td>
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<td>4) BAAS</td>
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<td>1.08</td>
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<td>5) IBSS-R</td>
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<td>.34</td>
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<tr>
<td>Control</td>
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<td>6) EDE-Q</td>
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<td>7) BDI-II</td>
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</tr>
<tr>
<td>10) IBSS-R</td>
<td>3.78</td>
<td>.57</td>
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</table>

Note: Eating Disorder Examination-Questionnaire (EDE-Q), Beck Depression Inventory-II (BDI-II), Dutch Restrained Eating Scale (DRES), Beliefs About Appearance Scale (BAAS), Ideal Body Stereotype Scale-Revised (IBSS-R), and Behavioral Measure of Dietary Restraint (Beh Meas).

Sample Characteristics

In order to verify sample equivalence across experimental stages between participants initially randomly selected and contacted (n = 257), participants responding as interested (n = 178), participants attending the first experimental sessions (n = 155), and participants terminating the experiment prematurely (not present at 4-week follow-up) (n = 34) a MANOVA was conducted on three relevant demographic variables (age,
Table 7. Percentage of Participants Present by Group and Symptomatic Status

<table>
<thead>
<tr>
<th>Group</th>
<th>Symptomatic Status</th>
<th>Postintervention</th>
<th>Follow-up</th>
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</thead>
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<td>71</td>
</tr>
<tr>
<td></td>
<td>Asymptomatic</td>
<td>82</td>
<td>73</td>
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<td></td>
<td>Total</td>
<td>81</td>
<td>72</td>
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<td>Psychoeducational/Sociocultural</td>
<td>Symptomatic</td>
<td>100</td>
<td>69</td>
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<td></td>
<td>Asymptomatic</td>
<td>86</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>92</td>
<td>61</td>
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</tr>
<tr>
<td></td>
<td>Total</td>
<td>92</td>
<td>86</td>
</tr>
</tbody>
</table>

grade point average, and average weekly workout time). Results were insignificant (Wilks’ \( \lambda = .95, F (3,585), p = .49, \eta^2 = .006 \)) indicating that a demographically equivalent sample had been obtained at each experimental stage. Table 7 represents a group by symptomatic status depiction of the percentage of participants from the final sample (n = 155) present at the postintervention and follow-up sessions.

Asymptomatic versus Symptomatic Participants

Next, a MANOVA was conducted to evaluate differences between the asymptomatic and symptomatic portions of the sample on three demographic variables (age, workout time, and grade point average). Results were statistically significant (Wilks’ \( \lambda = .93, F (1, 152), p < .05, \eta^2 = .027 \)). Therefore, contrast tests were conducted to evaluate the origin of these differences and a Bonferroni adjustment was performed to control for type I error (.05/3, Bonferroni adjusted alpha = .016). Results for age were not statistically significant indicating that there were no differences between the asymptomatic and symptomatic portions of the sample on this variable \( F(1,152), p = .76 \). Results for exercise were not
statistically significant $F(1,152), p = .04$, indicating that symptomatic participants did not exercise significantly more than asymptomatic participants. This finding is somewhat surprising, given that excessive exercise frequently accompanies disordered eating behavior. However, there was a trend in this expected direction and it is possible that this difference in workout time was not extremely large because the symptomatic portion of the sample did not display full-blown eating disorder behavior, instead they displayed risk factors in that direction. Results for grade point average were statistically significant $F(1,152), p = .01$, indicating that participants in the symptomatic portion of the sample had higher grade point averages than participants in the asymptomatic portion of the sample. These results were anticipated, given that people exhibiting eating disorder risk factors tend to have perfectionistic tendencies, which often lead them to be achievement oriented.

Test-Retest Reliability Estimates

Test-retest reliability statistics were computed for each of the 5 measures of interest. The test-retest reliability statistics at 4-week follow-up were as follows: Beck Depression Inventory – II (BDI-II) ($r = .84$); Eating Disorder Examination – Questionnaire (EDE-Q) ($r = .85$); Dutch Restrained Eating Scale (DRES) ($r = .90$); Beliefs About Appearance Scale (BAAS) ($r = .68$); and Ideal-Body Stereotype Scale – Revised (IBSS-R) ($r = .70$).

Intercorrelations of Measures

Pearson product-moment correlation coefficients were computed to provide estimates of the correlations between the outcome measures under investigation. As displayed in Table 8, the correlations ranged from .27 to .69. In addition, 8 of the 10 correlations were significant at the 0.01 level.
Experimenter Effect

Following an examination of sample characteristics, a third MANOVA was conducted to test for a possible experimenter effect on the six outcome measures evaluated at postintervention (BDI-II, EDE-Q, BAAS, IBSS-R, DRES, and the behavioral measure of dietary restraint), the five outcome variables assessed at 4-week follow-up (BDI-II, EDE-Q, BAAS, IBSS-R, and DRES), and the two measures designed to serve as manipulation checks (PAS, experimenter developed measure). Results were not statistically significant, indicating that no experimenter effect was present.

Manipulation Checks

Next, a oneway (group) ANOVA was conducted evaluating differences between dissonance-based and psychoeducational/sociocultural conditions on the Perceived

Table 8. Intercorrelations Among Measures

<table>
<thead>
<tr>
<th>Measures</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) BDI-II</td>
<td>-</td>
<td>.57**</td>
<td>.27</td>
<td>.54**</td>
<td>.37</td>
</tr>
<tr>
<td>2) EDE-Q</td>
<td>-</td>
<td>.69**</td>
<td>.68**</td>
<td>.54**</td>
<td></td>
</tr>
<tr>
<td>3) DRES</td>
<td>-</td>
<td>.50**</td>
<td></td>
<td>.42**</td>
<td></td>
</tr>
<tr>
<td>4) BAAS</td>
<td>-</td>
<td></td>
<td>.48**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5) IBSS-R</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

*Note: **Correlation is significant at the 0.01 level. Eating Disorder Examination-Questionnaire (EDE-Q), Beck Depression Inventory-II (BDI-II), Dutch Restrained Eating Scale (DRES), Beliefs About Appearance Scale (BAAS), Ideal Body Stereotype Scale-Revised (IBSS-R), and Behavioral Measure of Dietary Restraint (Beh Meas).
Arousal Scale and the experimenter developed measure designed to assess cognitive dissonance. It was anticipated that participants in the dissonance-based condition would exhibit lower scores than participants in the psychoeducational/sociocultural condition on the perceived arousal measure, as dissonance theory would predict they would be experiencing less arousal and tension at postintervention as they brought their attitudes and behaviors in alignment. The one-way ANOVA conducted to evaluate this difference was not statistically significant $F(1,67), p = .36$, indicating that there were no differences between groups on this arousal construct. This finding is somewhat puzzling given the predictions that would be made by the theory of cognitive dissonance, however, it is possible that both groups were experiencing a nonspecific source of arousal not attributable to attitude/behavioral inconsistencies.

A second one-way (group) ANOVA was conducted to evaluate differences between the dissonance-based and psychoeducational/sociocultural groups on the experimenter developed measure designed to assess group differences on the three cognitive dissonance variables manipulated in the study (voluntary vs. involuntary, high vs. low effort, public vs. private). This ANOVA was not statistically significant $F(1, 67), p = .27$, indicating that there were no differences between the dissonance-based and psychoeducational/ sociocultural conditions on this measure. This result also was not anticipated, given that many of the manipulations used in the present study were similar to those employed in previous research where dissonance was successfully engendered. One possible explanation for these lack of findings may have been that the experimenter developed measure was not sensitive enough to detect potential group differences on this variable. The likelihood of this possibility is difficult to evaluate given that no psychometric data exists for this measure.
Preliminary Analyses

Two 3 (group: dissonance-based, psychoeducational/sociocultural, control) x 2 (symptomatic status: symptomatic, asymptomatic) multivariate analyses of variance were conducted at postintervention and 4-week follow-up. Neither analysis was statistically significant at \( p < .05 \). This result was anticipated based on the findings of previous research, which suggest the control group means on the six independent variables at postintervention and the five independent variables at 4-week follow-up should be intermediate to the means of the psychoeducational/sociocultural and dissonance-based conditions. Previous research demonstrates that means of outcome variables assessed in the psychoeducational/sociocultural condition are frequently below the means of the control condition, while means of the dissonance-based condition are often higher compared to control condition means (Carter et al., 1997; Stice et al., 2001; Stice et al., 2000). The intermediate placement of the control group means between the means of the dissonance-based and psychoeducational/sociocultural interventions has the potential to obscure differences in the omnibus 3 x 2 MANOVA that might otherwise be statistically significant. Given the relatively small effect sizes commonly detected in eating disorder prevention studies, it was important to maximize the potential to detect differences present among groups. Therefore, it was determined that two subsequent 2 (group: dissonance, psychoeducational/sociocultural) x 2 (symptomatic status: symptomatic, asymptomatic) multivariate analyses of variance should be conducted to inspect group differences potentially obscured by the presence of intermediate means in the control condition. The results of these subsequent analyses will determine whether this initial assumption was accurate.
Main Analyses

Postintervention Results

Results from the 2 (group: dissonance, psychoeducational/sociocultural) x 2 (symptomatic status: symptomatic, asymptomatic) MANOVA conducted on the six dependent variables (EDE-Q, BAAS, IBSS-R, DRES, BDI-II, behavioral measure of dietary restraint) at postintervention were statistically significant (Wilks’ $\lambda = .80$, $F(1,66)$, $p = .03$, $\eta^2 = .065$). These results confirmed the initial assumption that the intermediate location of the control group obscured differences present between the psychoeducational/sociocultural and dissonance-based conditions. Following the significant MANOVA results at postintervention appropriate contrasts consistent with a 2 x 3 factorial were performed to further investigate the origin of postintervention group differences. In order to minimize the potential for type one error, a Bonferroni adjustment ($\alpha = .05/6$) was performed to control for the six dependent variables assessed at postintervention. Therefore, results were statistically significant if $p \leq .008$. Results indicated that three variables (EDE-Q, DRES, behavioral measure of dietary restraint) displayed statistically significant group differences at this level.

Eating Disorder Examination – Questionnaire

Contrast tests revealed statistically significant group differences on the Eating Disorder Examination – Questionnaire. As expected, a statistically significant main effect for symptomatic status was present ($t = 4.63$, $df = 109$, $p < .008$). This result demonstrates that scores on the EDE-Q were higher among symptomatic participants ($M = 2.55$, $SD = .91$) compared to asymptomatic participants ($M = 1.66$, $SD = 1.18$), indicating that eating disorder behavior was more common among the symptomatic portion of the sample. The 95% confidence interval for this effect ranged from 0.57 to 1.27. Therefore, researchers can be
95% confident the population mean EDE-Q score would be .57 to 1.27 points higher among symptomatic participants compared to asymptomatic participants.

Next, interactions between group and symptomatic status were explored. Contrast tests indicated a statistically significant interaction between the dissonance and psychoeducational/sociocultural interventions across levels of symptomatic status (t = 2.72, df = 109, p = .008). This result implied that the dissonance and psychoeducational/sociocultural interventions were differentially effective in preventing eating disorder behavior for the asymptomatic and symptomatic portions of the sample.

The nature of this group x symptomatic status interaction was further explored by conducting contrast tests to examine the simple effect of group classification (dissonance-based, psychoeducational/sociocultural, or no-treatment control) at each level of symptomatic status (symptomatic, asymptomatic). Results revealed a statistically significant difference between the dissonance and psychoeducational/sociocultural conditions for asymptomatic participants (t = -3.22, df = 109, p < .008). This finding indicates that postintervention EDE-Q scores were lower for asymptomatic participants in the dissonance-based condition (M = 1.11, SD = 1.00) compared to asymptomatic participants in the psychoeducational/sociocultural condition (M = 2.20, SD = 1.19). The 95% confidence interval for this effect ranged from -0.32 to -1.86. Therefore, researchers can be 95% confident the population mean EDE-Q score would be .32 to 1.86 points less among asymptomatic participants in the dissonance-based condition compared to asymptomatic participants in the psychoeducational/sociocultural condition. Table 9 provides a summary of simple effects at postintervention.
Dutch Restrained Eating Scale

Additional contrast tests conducted on postintervention data displayed a statistically significant group difference on the Dutch Restrained Eating Scale. These results displayed a statistically significant main effect of symptomatic status ($t = 3.85$, df = 110, $p < .008$). This finding demonstrates that scores on the DRES were higher among symptomatic participants ($M = 3.23$, $SD = .74$) compared to asymptomatic participants ($M = 2.70$, $SD = .80$), indicating that dietary restraint was more common among the symptomatic portion of the sample. The 95% confidence interval for this effect ranged from .27 to .83, indicating that researchers can be 95% confident the population mean on the DRES would be .27 to .83 points higher among symptomatic participants compared to nonsymptomatic participants at postintervention. No statistically significant interaction effects were detected on this measure at postintervention.

Behavioral Measure of Dietary Restraint

Contrast tests revealed a statistically significant difference on the experimenter developed behavioral measure of dietary restraint. These results displayed a statistically significant main effect of symptomatic status ($t = 5.56$, df = 66, $p < .008$). This finding demonstrates that scores on the behavioral measure of dietary restraint were higher among symptomatic participants ($M = 3.79$, $SD = 1.75$) compared to asymptomatic participants ($M = 2.00$, $SD = 1.41$), indicating that behavioral dietary restraint was less severe among the symptomatic portion of the sample. This finding is somewhat surprising, given that the Dutch Restrained Eating Scale indicated a higher amount of restrained eating among symptomatic participants. The 95% confidence interval for this effect ranged from 1.18 to 2.48, indicating that researchers could be 95% confident the population mean behavioral
dietary restraint score would be 1.18 to 2.48 points higher among symptomatic participants compared to asymptomatic participants.

Next, interactions between group and symptomatic status were explored. Contrast tests indicated a statistically significant interaction between the dissonance and psychoeducational/sociocultural interventions across levels of symptomatic status ($t = -3.26, \text{df} = 66, p < .008$). This result implied that the dissonance and psychoeducational/sociocultural interventions were differentially effective in preventing dietary restriction for the asymptomatic and symptomatic portions of the sample.

The nature of this group x symptomatic status interaction was further explored by conducting contrast tests to examine the simple effect of group classification (dissonance-based, psychoeducational/sociocultural) at each level of symptomatic status (symptomatic, asymptomatic). Results revealed a statistically significant simple effect between the dissonance and psychoeducational/sociocultural conditions for symptomatic participants ($t = -4.94, \text{df} = 66, p < .008$). This finding indicates that postintervention behavioral dietary restraint scores were lower for symptomatic participants in the dissonance-based condition ($M = 1.11, SD = 1.00$) compared to symptomatic participants in the psychoeducational/sociocultural condition ($M = 2.20, SD = 1.19$). Since lower scores indicate higher restraint, these results imply a higher level of dietary restriction in the dissonance-based condition. The 95% confidence interval for this effect ranged from $-1.4$ to $-3.3$, indicating that researchers can be 95% confident that scores would be 1.4 to 3.3 points lower for the dissonance group on this postintervention measure.
Follow-Up Results

Results from the 2 (group: dissonance, psychoeducational/sociocultural) x 2 (symptomatic status: symptomatic, asymptomatic) MANOVA conducted at postintervention were not statistically significant (Wilks’ $\lambda = .92$, $F(5,44), p = .55$, $\eta^2 = .171$). Therefore, researchers concluded that differences present at postintervention were not maintained at follow-up and no further analyses were performed.

Table 9. Simple Effects at Postintervention

<table>
<thead>
<tr>
<th>Group</th>
<th>EDE-Q</th>
<th>BDI-II</th>
<th>DRES</th>
<th>BAAS</th>
<th>IBSS-R</th>
<th>Beh Meas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sympto</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D vs P</td>
<td>.71</td>
<td>.48</td>
<td>.83</td>
<td>.40</td>
<td>.97</td>
<td>.73</td>
</tr>
<tr>
<td>P vs C</td>
<td>.79</td>
<td>-.27</td>
<td>-1.81</td>
<td>.07</td>
<td>.59</td>
<td>.56</td>
</tr>
<tr>
<td>D vs C</td>
<td>.48</td>
<td>.63</td>
<td>-.94</td>
<td>.35</td>
<td>1.64</td>
<td>.10</td>
</tr>
<tr>
<td>Asympto</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D vs P</td>
<td>-3.22</td>
<td>**.00</td>
<td>-1.67</td>
<td>.10</td>
<td>-1.60</td>
<td>.11</td>
</tr>
<tr>
<td>P vs C</td>
<td>1.76</td>
<td>.08</td>
<td>.72</td>
<td>.47</td>
<td>.77</td>
<td>.44</td>
</tr>
<tr>
<td>D vs C</td>
<td>-1.66</td>
<td>.10</td>
<td>-1.06</td>
<td>.29</td>
<td>-.92</td>
<td>.36</td>
</tr>
</tbody>
</table>

* Denotes significance at $p \leq .008$.

Note. D denotes dissonance. P denotes psychoeducational/sociocultural. C denotes no-treatment control. Eating Disorder Examination-Questionnaire (EDE-Q), Beck Depression Inventory-II (BDI-II), Dutch Restrained Eating Scale (DRES), Beliefs About Appearance Scale (BAAS), Ideal Body Stereotype Scale-Revised (IBSS-R), and Behavioral Measure of Dietary Restraint (Beh Meas).
DISCUSSION

The results of this study provided information pertaining to two important questions regarding eating disorder prevention paradigms. First, it has been widely suggested that such paradigms should only be aimed at symptomatic groups, as the results among asymptomatic participants have been mixed (Franko, 1998; Huon, 1994; Stice et al., 2001; Stice et al., 2000). Therefore, it has been implied that we should neglect primary prevention efforts altogether in order to focus a more concerted effort in the area of secondary prevention. The present study addresses this issue by providing a direct empirical comparison of the differential efficacy of two prevention intervention paradigms for asymptomatic versus symptomatic participants.

A second question generating considerable controversy within the eating disorder prevention literature surrounds the relative efficacy of various prevention approaches. Numerous studies have evaluated the effectiveness of prevention programs in isolation or compared to control conditions, but none have provided a direct empirical comparison of the relative efficacy of the various intervention paradigms. This is an important research question, as outcome findings have yielded mixed results. For example, some research suggests a dissonance-based approach is superior (e.g., Stice et al., 2001; Stice et al., 2000). This assertion is contradicted by other studies, which suggest that a psychoeducational/sociocultural approach is preferred (e.g., Franko, 1998; Santonastoaso et al., 1999). This latter notion has met with considerable controversy as a result of additional research, which indicates that a psychoeducational/sociocultural approach leads to either no change (e.g., Killen, 1993; Paxton, 1993; Stewart et al., 2001) or worse yet, an increase in
eating disorder risk factors among intervention participants (e.g., Carter et al., 1997). The present study is the first of its kind to provide a direct empirical comparison of the relative effectiveness of two prevention paradigms and a no-treatment control condition in the prevention of eating disorder attitudes and behaviors among symptomatic and asymptomatic people.

Asymptomatic Postintervention Findings

As predicted, postintervention findings indicated that the dissonance-based intervention was more effective than the psychoeducational/sociocultural intervention at reducing eating disorder symptomatology as assessed by the Eating Disorder Examination – Questionnaire in asymptomatic participants. Not only is this finding statistically significant, it also holds enormous practical significance, as researchers can be 95% confident that the scores on this measure were .32 to 1.86 points lower among participants in the dissonance-based intervention. A potential difference of 1.86 on a 7-point scale means that there was a significant reduction of eating disorder pathology among the dissonance-based group compared to the psychoeducational/sociocultural group for the asymptomatic portion of the sample.

This finding suggests that a dissonance-based program may be the intervention of choice when directing prevention efforts at asymptomatic populations. However, it should be noted that this effect was not maintained at 4-week follow-up. Therefore, despite its initial superiority, a dissonance-based approach may be no more effective than a psychoeducational/sociocultural approach for asymptomatic participants in producing long-lasting reductions in eating disorder risk factors. In addition, it should be noted that there were no statistically significant differences between participants in the control and
dissonance-based conditions on the EDE-Q. These results suggest that the dissonance-based intervention conferred no significant value in terms of reducing eating disorder pathology among asymptomatic participants. In addition, there were no differences on any of the five remaining variables for the asymptomatic portion of the sample. Specifically, they showed no reductions in dietary restraint (DRES, behavioral measure of restraint), appearance orientation (BAAS), thin-ideal internalization (IBSS-R), or depression (BDI-II) compared to participants in the no-treatment control condition. Given the nature of these findings, one may question the utility of investing the time and money required to conduct eating disorder prevention programs with asymptomatic persons in light of the diminishing returns.

Symptomatic Postintervention Findings

Results on the behavioral measure of dietary restraint indicated that symptomatic participants in the psychoeducational/sociocultural condition had higher scores on this measure compared to symptomatic participants in the dissonance-based condition. Since higher scores on this measure indicated lower levels of dietary restraint, these findings suggest that the symptomatic participants in the psychoeducational/sociocultural group exhibited less dietary restraint. These results must be interpreted with extreme caution however, as this was an experimenter developed measure and therefore, is lacking in psychometric data providing evidence of its validity and reliability. Results of the present study call its validity into question, as it was not highly correlated with the Dutch Restrained Eating Scale. In addition, symptomatic participants displayed lower levels of dietary restraint than asymptomatic participants according to this measure, which is contrary to expectations. Therefore, these results suggest that the psychoeducational/sociocultural intervention is more effective than the dissonance-based intervention at reducing behavioral
scores of dietary restraint, but this finding should be further examined in future investigations given the questionable nature of the assessment instrument.

Contrary to predictions, no differences were found among the EDE-Q scores of symptomatic participants across the three experimental conditions. This implies that not only were the dissonance-based and psychoeducational/sociocultural interventions not differentially effective for this portion of the sample, also neither intervention resulted in lower scores on the EDE-Q than those found in the no-treatment control condition.

The dissonance-based intervention also was not superior to the psychoeducational/sociocultural intervention in reducing appearance orientation (BAAS), depression (BDI-II), thin-ideal internalization (IBSS-R), or dietary restraint (DRES) for the symptomatic portion of the sample. In addition, neither intervention was superior to the no-treatment control condition in reducing risk of eating disorder pathology as assessed by these 4 dependent variables.

These findings are inconsistent with the original hypotheses of the present study, which predicted that a dissonance-based intervention would be superior to both a psychoeducational/sociocultural intervention and a no-treatment control condition in reducing eating disorder attitudes and behaviors among symptomatic participants. The findings of the present study stand in stark contrast to those reported in Stice et al. (2000). Stice et al. (2000) reported a statistically significant difference on the EDE-Q for symptomatic participants receiving a dissonance-based intervention compared to participants in the control condition. In this study, the scores of participants in the dissonance-based condition were significantly lower than the EDE-Q scores of participants in the control condition, indicating the presence of less eating disorder pathology. In addition, Stice et al.
(2001) reported decreases in thin-ideal internalization, body dissatisfaction, and bulimic symptomatology among symptomatic participants receiving a dissonance-based intervention compared to participants in a control condition. Discrepancies between these findings and the findings of the present study are somewhat puzzling given the fact that the dissonance-based intervention paradigms incorporated in the 3 studies contained highly similar messages and activities.

Inconsistencies between the findings of the Stice et al. (2000) study, the Stice et al. (2001) study, and the present study could be explained by several factors. First, the sample in the present study was randomly selected from a volunteer psychology department participant pool containing 597 women. Stice et al. (2000) and Stice et al. (2001) recruited participants via newspaper advertisements, thereby obtaining convenience samples. Therefore, it is possible that some basic differences in the samples contributed to the inconsistent findings. In addition, the present study randomly assigned participants to groups, whereas Stice et al. (2000) did not. Therefore, it is possible that other factors not controlled for by random assignment were systematically contributing to the findings in the Stice et al. (2000) study. Finally, the alpha level employed in the Stice et al. (2001) study ($\alpha = .016$) was less conservative than the Bonferroni adjusted alpha level in the present study ($p < .008$), which may account for differences in statistically significant findings.

Implications

The results of the present study hold numerous implications for the implementation of eating disorder prevention paradigms. First, it is apparent that different types of paradigms may be effective for symptomatic versus asymptomatic people. It appears that the psychoeducational/sociocultural approach may be most effective for symptomatic
participants in reducing behavioral dietary restraint immediately following the intervention program. This assumption is based on the fact that the psychoeducational/sociocultural approach was more effective than the dissonance-based approach in reducing behavioral dietary restraint among symptomatic participants (as assessed by an experimenter developed postintervention behavioral measure of this construct). However, three cautionary notes are in order when interpreting these findings. First, the behavioral measure of dietary restraint was not administered at 4-week follow-up and therefore, the longevity of this change cannot be assessed. Second, since this measure was developed for the purposes of this experiment, its validity and reliability have not been established. Finally, this measure was not administered to control group participants and therefore, comparisons between the two intervention conditions and the no-treatment control condition cannot be made.

While the psychoeducational/sociocultural intervention seems to be most effective for symptomatic participants, it was comparatively less effective than the dissonance-based intervention in reducing eating disorder risk factors among asymptomatic participants. Specifically, the dissonance-based intervention was more effective in reducing eating disorder pathology at postintervention for the asymptomatic portion of the sample. Therefore, a dissonance-based intervention may be the treatment of choice for asymptomatic participants. However, it should be noted that this effect was not maintained at 4-week follow-up and that the dissonance-based intervention was no more effective than a no-treatment control condition for asymptomatic participants. Therefore, the value of administering an intervention program to asymptomatic populations is questioned.

Of notable interest in this investigation was the fact that neither the dissonance-based intervention nor the psychoeducational/sociocultural intervention proved to be significantly
more effective than the no-treatment control condition in reducing eating disorder risk factors on the five variables assessed in all conditions at postintervention (behavior dietary restraint not assessed in the control condition) and at 4-week follow-up. These findings hold considerable practical significance, as the implementation of eating disorder prevention programs requires a lot of time, effort, and financial investment. Therefore, the results of this investigation align with the numerous other prevention studies that question the utility of eating disorder prevention interventions.

Limitations

One limitation of this study is that it makes the assumption that cognitive dissonance was high among participants in the dissonance-based condition. However, manipulation checks designed to evaluate the degree of dissonance present did not detect a difference between participants in the dissonance-based condition and participants in the psychoeducational/sociocultural condition on variables manipulated to foster dissonance. This finding is a bit puzzling given that many manipulations employed in the present study were based on similar manipulations that had successfully fostered cognitive difference in previous investigations. Perhaps one explanation for this finding may be that the measure designed by the experimenter to assess cognitive dissonance was not psychometrically sound. Therefore, dissonance may have been higher among participants in the dissonance-based condition but the measure may not have been sensitive enough to detect such differences. Future investigations exploring this approach should make active attempts to ensure that cognitive dissonance is being fostered among participants.

A second limitation of the current study is sample size. The sample size employed was large enough to detect differences across the three experimental conditions, however, it
may not have been large enough to detect differences between the symptomatic and asymptomatic portions of the sample across the three conditions. In other words, the sample size estimate was based on making comparisons among three groups (dissonance-based, psychoeducational/sociocultural, and no-treatment control), when actual comparisons were made among six (symptomatic dissonance-based, asymptomatic dissonance-based, symptomatic psychoeducational/sociocultural, asymptomatic psychoeducational/sociocultural, symptomatic no-treatment control, and asymptomatic no-treatment control). Despite this fact, the sample size employed in the present study is larger than the sample sizes of 10 of the existing 16 eating disorder prevention studies and many studies with significantly smaller samples have found statistical significance on the same measures employed in this investigation. Therefore, it is assumed that the sample was large enough to detect many differences that were potentially present. However, future investigations may want to focus on incorporating a larger sample.

Finally, the causes of eating disorder pathology are complex and multifaceted. It is quite possible that a 3-hour intervention spanning a 2-week period is not long enough to foster changes in what is probably a long-standing behavior pattern. This fact may be especially true for symptomatic people who display more eating disorder risk factors. A 3-hour intervention was selected because it closely approximates the mean of the duration of the 16 interventions employed in the current eating disorder prevention literature. However, it is possible that a more long-term intervention approach may be required to incite true change. Future research should focus on evaluating optimal prevention intervention lengths.
Suggestions for Future Research

In summary, future research should focus primarily on four main goals. First, continued emphasis should be placed on evaluating the relative efficacy of various prevention approaches. Specific attention should be paid to exploring how each prevention approach may be differentially effective depending on participants' symptomatic status. Second, no-treatment control groups should be employed in all efficacy studies to provide a cost-benefit analysis of effort expenditure versus positive results. Third, future research should attempt to identify the key components critical to the success of any given successful approach. In this aim, variables such as optimal intervention length should be examined more extensively and change mechanisms more clearly identified. Finally, more thorough, structured, systematic paradigms should be developed based on the results of previous findings that have identified successful prevention components. This goal is essential if standard prevention paradigms are to be more systematically administered and researched. The incorporation of these four goals is essential if we are to gain a more thorough understanding of how to prevent these devastating disorders.
APPENDIX A


APPENDIX B

Demographic Questionnaire

1. Please list your age in years. _______ years

2. Please circle the letter of the item that most accurately describes your ethnic origin.
   a. Anglo American/Caucasian
   b. African American
   c. Asian American
   d. Hispanic/Latino
   e. Other

3. Please circle the letter of the item that most accurately describes your sexual orientation.
   a. Gay/Lesbian
   b. Heterosexual
   c. Bisexual
   d. Transgendered

4. Please circle the letter of the item that depicts your gender.
   a. Male
   b. Female

5. Please circle the letter of the item that most accurately depicts your current relationship status.
   a. Single
   b. Committed Relationship
   c. Married
   d. Non-exclusive relationship
   e. Divorced
   f. Widowed

6. Please circle the letter of the item that most accurately depicts your current sorority/fraternity membership.
   a. I am a member of a sorority/fraternity.
   b. I am not a member of a sorority/fraternity.

7. Please circle the letter of the item that most accurately depicts your current involvement in Big 12 collegiate athletics.
   a. I am a member of a Big 12 collegiate athletic team.
   b. I am not a member of a Big 12 collegiate athletic team.

8. Please circle the letter of the item that most accurately depicts the amount of time you spend working out in an average week.
   a. None
   b. Less than 1 hour
   c. 1-2 hours
   d. 2-3 hours
   e. 3-4 hours
   f. over 4 hours

9. Please list your cumulative college GPA (or if this is your first semester at ISU, list your high school GPA). __________
10. Please list your weight in pounds. _____ pounds
11. Please list your height in inches. _____ inches
APPENDIX C

Eating Questionnaire

Please complete the following questions as honestly as possible. The questions refer to current behaviors and beliefs, meaning those that have occurred in the past 3 months.

1. Do you experience recurrent episodes of binge eating, meaning eating in a discrete period of time (e.g., within any 2-hour period) an amount that is definitely larger than most people would eat during a similar time period?
   - 1-Yes
   - 2-No

   **If YES:** Continue to answer the following questions.
   **If NO:** Skip the following 3 questions.

2. Do you have a sense of lack of control during the binge eating episodes (i.e., the feeling that you cannot stop eating or control what or how much you are eating)?
   - 1-Yes
   - 2-No

3. On the average, I have had _______ binge eating episodes a WEEK.
   - 1-one
   - 2-two
   - 3-three
   - 4-four
   - 5-five
   - 6-six or more

4. I have been having this many binge episodes a WEEK for at least:
   - 1-one month
   - 2-two months
   - 3-three months
   - 4-four months
   - 5-five months
   - 6-six to twelve months
   - 7-more than one year

Please fill in the number of the appropriate responses below concerning things you may do currently to prevent weight gain. If you answer yes to any question, please answer the following questions indicating how often on the average you do this and how long you have been doing this. If you answer no to any question, leaving the following questions regarding frequency and duration blank.

5. Do you make yourself vomit to prevent weight gain? (If no, skip the next 2 questions).
   - 1-Yes
   - 2-No

6. How often do you do this?
   - 1-Daily
   - 2-Twice per week
   - 3-Once per week
   - 4-Once per month

7. How long have you been doing this?
   - 1-One month
   - 2-Two months
   - 4-Four months
   - 5-Five to eleven months
8. Do you take laxatives to prevent weight gain? (If no, skip the next 2 questions).
   1-Yes
   2-No

9. How often do you do this?
   1-Daily
   2-Twice per week
   3-Once per week
   4-Once per month

10. How long have you been doing this?
    1-One month
    2-Two months
    3-Three months
    4-Four months
    5-Five to eleven months
    6-More than a year

11. Do you take diuretics (water pills) to prevent weight gain? (If no, skip next 2 questions.)
    1-Yes
    2-No

12. How often do you do this?
    1-Daily
    2-Twice per week
    3-Once per week
    4-Once per month

13. How long have you been doing this?
    1-One month
    2-Two months
    3-Three months
    4-Four months
    5-Five to eleven months
    6-More than a year

14. Do you fast (skip food for 24 hours) to prevent weight gain? (If no, skip next 2 questions).
    1-Yes
    2-No

15. How often do you do this?
    1-Daily
    2-Twice per week
    3-Once per week
    4-Once per month

16. How long have you been doing this?
    1-One month
    2-Two months
    3-Three months
    4-Four months
    5-Five to eleven months
    6-More than a year

17. Do you chew food but spit it out to prevent weight gain? (If no, skip next 2 questions).
    1-Yes
    2-No

18. How often do you do this?
    1-Daily
19. How long have you been doing this?
   1 - One month  
   2 - Two months  
   3 - Three months  
   4 - Four months  
   5 - Five to eleven months  
   6 - More than a year

20. Do you give yourself an enema to prevent weight gain? (If no, skip next 2 questions).
   1 - Yes  
   2 - No

21. How often do you do this?
   1 - Daily  
   2 - Twice per week  
   3 - Once per week  
   4 - Once per month

22. How long have you been doing this?
   1 - One month  
   2 - Two months  
   3 - Three months  
   4 - Four months  
   5 - Five to eleven months  
   6 - More than a year

23. Do you take appetite control pills to prevent weight gain? (If no, skip next 2 questions.)
   1 - Yes  
   2 - No

24. How often do you do this?
   1 - Daily  
   2 - Twice per week  
   3 - Once per week  
   4 - Once per month

25. How long have you been doing this?
   1 - One month  
   2 - Two months  
   3 - Three months  
   4 - Four months  
   5 - Five to eleven months  
   6 - More than a year

26. Do you diet strictly to prevent weight gain? (If no, skip next 2 questions.)
   1 - Yes  
   2 - No

27. How often do you do this?
   1 - Daily  
   2 - Twice per week  
   3 - Once per week  
   4 - Once per month

28. How long have you been doing this?
   1 - One month  
   2 - Two months  
   3 - Three months  
   4 - Four months  
   5 - Five to eleven months  
   6 - More than a year

29. Do you exercise a lot? (If no, skip next 5 questions.)
   1 - Yes
2-No

30. How often do you do this?
   1-Daily
   2-Twice per week
   3-Once per week
   4-Once per month

31. How long have you been doing this?
   1-One month
   2-Two months
   3-Three months
   4-Four months
   5-Five to eleven months
   6-More than a year

32. My exercise sometimes significantly interferes with important activities.
   1-Yes
   2-No

33. I exercise despite injury and/or medical complications.
   1-Yes
   2-No

34. Is your primary reason for exercising to counteract the effects of binges or to prevent weight gain?
   1-Yes
   2-No

For the following 3 questions, please fill in the number of the response that best reflects your answer. Please use the following scale:

1-Yes  2-No

35. Does your weight and/or body shape influence how you feel about yourself?
36. How afraid are you of becoming fat?
37. How afraid are you of gaining weight?
38. Do you consider yourself to be:
   1-Grossly Obese
   2-Moderate Overweight
   3-Obese
   4-Normal Weight
   5-Low Weight
   6-Severely Underweight

For the following 3 questions, please fill in the number of the response that best reflects your answer. Please use the following scale.

1-Yes  2-No

39. Certain parts of my body (e.g., my abdomen, buttocks, thighs) are too fat.
40. I feel fat all over.
41. I have missed at least 3 consecutive menstrual cycles (not including those missed during a pregnancy).
**APPENDIX D**

\[ n(j) = 4(\sigma_1 + \sigma_2)(z/w)^2 + 1 \]

\[ n(j) = 4(1.28)(3.84)^2 + 1 = 21 \text{ per group} = 63 \text{ subjects total} \text{ (2}\textsuperscript{nd} \text{ most conservative estimate; get needed power on all measures but EDE-Q)} \]

\[ n(j) = 4(2.88)(3.84)^2 + 1 = 45 \text{ per group} = 135 \text{ subjects total} \text{ (most conservative estimate; get needed power on all measures)} \]
APPENDIX E

Experimenter's Agenda Sheet
Dissonance-Based Condition

Note: The packet that accompanies this sheet provides each of these items in the order that you will present them.

Session One

Note: Arrive about 5 minutes early. Go to my office and get 35 experimental packets and 35 $1 bills from the top drawer of the locked filing cabinet. Bring 35 extra credit cards with 2 credits filled in the blank.

1. Read informed consent to them verbatim, ask if there are any questions. Instruct them to sign informed consent (4 minutes).

2. Read the instructions for the experiment (1 minute).

3. Instruct them to complete a series of experimental measures (20 minutes – should be 6:25 when this portion is completed).

4. Lecture on the hazards of the thin-ideal (30 minutes – should be 6:55 when this portion is completed).

5. Instruct them to complete the counterattitudinal essays, read the instructions verbatim on the sheet (30 minutes – should be 7:25 when this portion is completed).

6. Say, "Now you will be completing measures for a second experiment to be completed at the end of the next week’s session. Again, this experiment is evaluating the impact of mood on self-image and mental health/well-being. These measures will simply be providing preliminary data for this experiment." (5 minutes – should be 7:30 when this portion is completed).

7. Instruct them to complete counterattitudinal responses to the thin-ideal statements. Read the instructions verbatim on the sheet. Anyone who elects to complete these will be given $1. If they chose to sit quietly, give them no money. (20 minutes – should be 7:50 when this portion is completed).

8. Explain optional homework activity. Read instructions verbatim on the sheet. Emphasize that they will receive one additional extra credit point if they elect to complete this. (5 minutes – should be 7:55 when this portion is completed).

9. State, "This marks the conclusion of session one of the experiment. This experiment will continue at the same time next week. If you choose to complete the optional homework
activity, then you should turn it in at the beginning of next week’s session. For the purposes of linking experimental materials, you should now write the middle 9 digits of our ISU card in the upper right hand corner of the cover sheet where it says Middle 9 Digits ISU Card ______. Please remember this number, as it is how you will identify your packet next week. Thanks for all your hard work tonight. I think we are on our way to developing a great program. After you have written down your number, please form a line at the front of the room to turn in your experimental packets.”

10. Instruct them to form a line to hand in their experimental packets.

11. Give them their 2-point extra credit cards and tell them that you will see them next week.

12. At this point, stack all the forms and put them in my office in the top drawer of the large filing cabinet.

Session Two

Note: Arrive 5 minutes early and set up fruit and candy baskets. Retrieve the 35 experimental packets used during the previous week from the top drawer of the large filing cabinet. Get the video camera sitting on the floor next to the large filing cabinet. Get 35 1-point extra credit cards (just in case all 35 people completed the optional homework activity) and 35 2-point extra credit cards (to give at experiment’s completion).

1. Instruct them to turn in their optional homework activities. Give each person turning in homework a 1-point extra credit card (1 minute). Hand out experimental packets.

2. Instruct them to write responses to letters that we have received from adolescent girls. Read verbatim the instructions on the sheet (30 minutes – this portion should be completed by 6:31).

3. State, “Now you are going to complete another measure in preparation for the next experiment. Again, the purpose of the second experiment is to evaluate the impact of mood on self-image, mental health, and well being.” (5 minutes – this portion should be completed by 6:56). While they are doing this, set up a camera at a point in the room that looks as though it will tape everyone, but don’t turn it on until the next portion. If you can’t get every in, immediately before the next portion instruct them to move closer together so the camera will pick everyone up.

4. Read verbatim the instructions for the discussion activity (20 minutes – this portion should be completed by 6:51). State, “I going to remain inactive during this portion, as I feel the discussion will be more powerful for the young adolescent women who will be viewing the tape if the discussion involves you interacting spontaneously and is not directly facilitated by me.”
5. State, “This marks the conclusion of experiment 1. Please form a line at the front of the room to hand in your experimental packets. Once you have handed in your packets, please wait at the back of the room and I’ll walk you to the room of the next experiment. Thanks so much for your participation in this experiment.” Again as they hand in their experimental packets, act like you are checking the packets and say, “Feel free to take some food with you if you would like.” Then, watch them as subtly as you can and mark 0 if they take nothing, 1 if they take candy, or 2 if they take fruit. If they take multiple pieces, you can mark what they took and then the number of pieces in parentheses. Example: If they take 2 pieces of candy mark 1 (2) (1 representing the candy, 2 representing the 2 pieces). There will be a cover sheet on the front of each experimental packet and in the upper right hand corner there will be the word “completed” with a _____ after it (Completed ______). It is in this blank that you will write in the 0, 1, or 2 denoting what food they chose to take (4 minutes – should be 8:00 when this portion is completed). Hand them a 2-point extra credit card for their participation.
APPENDIX F

Experimenter’s Agenda Sheet
Psychoeducational Condition

Note: The packet that accompanies this sheet provides each of these items in the order that you will present them.

Session One

Note: Arrive about 5 minutes early. Go to my office and get 25 experimental packets and 25 $5 bills from the top drawer of the locked filing cabinet. Bring 25 extra credit cards with 2 credits filled in the blank.

1. Read informed consent to them verbatim, ask if there are any questions. Instruct them to sign informed consent (4 minutes).

2. Read the instructions for the experiment (1 minute).

3. Instruct them to complete a series of experimental measures (20 minutes – should be 6:25 when this portion is completed).

4. Lecture on the hazards of the thin-ideal (30 minutes – should be 6:55 when this portion is completed).

5. Instruct them to complete the counterattitudinal essays, read the instructions verbatim on the sheet (30 minutes – should be 7:25 when this portion is completed).

6. Say, “Now you will be completing measures for a second experiment to be completed at the end of the next week’s session. Again, this experiment is evaluating the impact of mood on self-image and mental health/well-being. These measures will simply be providing preliminary data for this experiment.” (5 minutes – should be 7:30 when this portion is completed).

7. Instruct them to complete counterattitudinal responses to the thin-ideal statements. Read the instructions verbatim on the sheet. Anyone who elects to complete these will be given $5. If they chose to sit quietly, give them no money. (20 minutes – should be 7:50 when this portion is completed).

8. Explain optional homework activity. Read instructions verbatim on the sheet. Emphasize that they will receive one additional extra credit point if they elect to complete this. (5 minutes – should be 7:55 when this portion is completed).

9. State, “This marks the conclusion of session one of the experiment. This experiment will continue at the same time next week. If you choose to complete the optional homework
activity, then you should turn it in at the beginning of next week’s session. For the purposes of linking experimental materials, you should now write the 9 middle digits of your ISU card in the upper right hand corner of the cover sheet where it says Middle 9 Digits ISU Card ________. Please remember this number, as it is how you will identify your packet next week. After you have written down your number, please form a line at the front of the room to turn in your experimental packets.”

10. Instruct them to form a line to hand in their experimental packets.

11. Give them their 2-point extra credit cards and tell them that you will see them next week.

12. At this point, stack all the forms and put them in my office in the top drawer of the large filing cabinet.

Session Two

Note: Arrive 5 minutes early and again set up fruit and candy baskets. Retrieve the 25 experimental packets used during the previous week from the top drawer of the large filing cabinet. Get 25 1-point extra credit cards (just in case all 25 people completed the optional homework activity) and 25 2-point extra credit cards (to give at experiment’s completion).

1. Instruct them to turn in their optional homework activities. Give each person turning in homework a 1-point extra credit card (1 minute). Hand out experimental packets.

2. Instruct them to write responses to letters that we have received from adolescent girls. Read verbatim the instructions on the sheet (30 minutes – this portion should be completed by 6:31).

3. State, “Now you are going to complete another measure in preparation for the next experiment. Again, the purpose of the second experiment is to evaluate the impact of mood on self-image, mental health, and well being.” (5 minutes – this portion should be completed by 6:56)

4. Read verbatim the instructions for the discussion activity (20 minutes – this portion should be completed by 6:51). State, “I going to remain inactive during this portion, but please try to state as much as you can about the potential negative consequences of the thin-ideal, as we are trying to assess how much you have learned during the experiment. You can refer to the essays you wrote early about the thin-ideal if this would be helpful.

5. State, “This marks the conclusion of experiment 1. Please form a line at the front of the room to hand in your experimental packets. Once you have handed in your packets, please wait at the back of the room and I’ll walk you to the room of the next experiment. Thanks so much for your participation in this experiment.” Again as they hand in their
experimental packets, act like you are checking the packets and say, “Feel free to take some food with you if you would like.” Then, watch them as subtly as you can and mark 0 if they take nothing, 1 if they take candy, or 2 if they take fruit. If they take multiple pieces, you can mark what they took and then the number of pieces in parentheses. Example: If they take 2 pieces of candy mark 1 (2) (1 representing the candy, 2 representing the 2 pieces). There will be a cover sheet on the front of each experimental packet and in the upper right hand corner there will be the word “completed” with a ______ after it (Completed ______). It is in this blank that you will write in the 0, 1, or 2 denoting what food they chose to take (4 minutes – should be 8:00 when this portion is completed). Hand them a 2-point extra credit card for their participation.
APPENDIX G

Experiment Agenda: Dissonance and Psychoeducational

Session One
1. Reading and completing informed consent (4 minutes).
2. Reading experimental instructions (1 minute).
3. Completing Rosenberg Self-Esteem Scale and Multidimensional Relationship Questionnaire (20 minutes).
4. Lecture on hazards of thin-ideal (30 minutes).
5. Completion of counterattitudinal essays (30 minutes).
6. Completion of Arousal Scale and PANAS (5 minutes).
7. Completion of counterattitudinal responses (20 minutes).
8. Instructions for optional homework activity (5 minutes).

Session Two
9. Turn in optional homework activity (1 minute)
10. Letter responses (30 minutes).
11. Completion of Arousal Scale, PANAS, experimenter developed measure assessing cognitive dissonance (5 minutes).
12. Discussion activity (20 minutes).
13. Collect experimental packets and behavioral measure of dietary restraint (4 minutes).
14. Relocating rooms and instructions for study two (5 minutes).
15. Completion of experimental measures (55 minutes).
APPENDIX H

Informed Consent Statement: Dissonance and Psychoeducational

**Experiment Title:** Improving the Self-Esteem of Adolescent Girls: The Development of a Body Image Enhancement Program

**Principal Investigator:** Melinda Green, M.S., W235 Lagomarcino Hall 294-9668
mgreen3@iastate.edu

**Faculty Supervisor:** Dr. Norman A. Scott, W271 Lagomarcino Hall 294-1509
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**Purpose**

This experiment is part of research being conducted within the department of psychology. This experiment is composed of two separate experiments that have been combined for convenience purposes as they share a similar aim of exploring mental health among adolescent/college-aged women. The purpose of the first experiment is to enlist the help of college-aged women in the development of a body image and self-esteem enhancement program for adolescent girls. As a participant in this experiment, you will receive information regarding a variety of difficult issues facing adolescent girls today. Body image acceptance issues will receive particular emphasis, since young girls seem to be especially critical of their bodies during the turbulent adolescent period. You will engage in a variety of activities designed to elicit your feedback on societal and peer influences that discourage body image acceptance during the adolescent period. As researchers, we hope to gain perspective on these issues through your unique contributions and input pertinent to this area.

The second experiment is designed to examine the impact of mood on mental health and self-image among college-aged women. We will elicit your own personal perspectives on this issue via a variety of self-report measures. Our hope is to use this data to gain a more thorough understanding of the detrimental impact of negative mood on self-image and overall mental health and well-being.

**Description**

As a participant in these two experiments, you will be meeting with a research assistant and approximately 20 other college-aged women for two two-hour experiment sessions (one two-hour session week 1, one two-hour session week 2). It will also require a 1-hour follow-up session. The first experiment will last for the entire week one 2-hour session and for 1-hour of the week two 2-hour session (3 hours total). The experiment will consist of the following components: a single lecture presentation pertinent to the origin of body image issues; group activities and discussions about body image acceptance; individual activities eliciting your own input on body image acceptance; an optional homework activity; and the completion of experimental measures concerning self-esteem and interpersonal tendencies.

In the final 50 minutes of the week two 2-hour session, you will be participating in a second unrelated experiment examining the impact of negative mood on self-image and mental health among college-aged women. During this experiment you will complete a total of 8
experimental measures assessing mood, dietary practices, self-image, and general mental health issues. Finally, approximately four weeks following the experiment's completion you will return for one final one-hour session to complete additional research measures pertinent to experiment 2 and to receive debriefing information on both experiments. Therefore, the total time commitment required in this experiment is approximately 5 hours. However, if you elect to participate in a voluntary homework activity, the total time involved may extend to 5 and one-half or 6 hours.

Benefits

Your participation in experiment 1 will contribute greatly to existing knowledge about body image acceptance among adolescent women and may also increase your own knowledge and awareness regarding the topic. Your participation in experiment 2 will allow researchers to gain a more accurate understanding of the impact of mood on self-image and mental health/well-being. You will be compensated for your valuable opinions through the opportunity to receive up to 7 psychology extra credit points and $5 in monetary compensation.

Risks

Body image acceptance and mental health issues are sensitive topics for many women and therefore, you may experience minimal psychological discomfort while discussing relevant issues. Frequently, further discussions within the experimental context help to alleviate concerns and discomfort. However, it is possible that reactions to discussions may evoke stronger reactions than are anticipated. In such cases, appropriate referrals and follow-up actions will be taken as necessary.

Confidentiality

All experimental measures will be identified only with numbers in order to link experimental materials. Therefore, there will be no identifying data on the measures completed during the experiment. Some materials in experiment 1 may contain no identifying information and these materials will be identified when presented. For purposes of follow-up, the principal investigator will have a sheet linking names to experimental numbers that will be kept in a locked location and will only be accessible to the principal investigator. This sheet will be destroyed in a period not to exceed 4 weeks after the debriefing session. If you have any questions, please feel free to discuss them with your research assistant or the principal investigator.

I HAVE READ, UNDERSTOOD, AND VOLUNTARILY AGREED TO PARTICIPATE IN THE EXPERIMENT DESCRIBED ABOVE. I UNDERSTAND THAT I CAN WITHDRAW FROM THIS EXPERIMENT ANYTIME WITHOUT ANY PENALTY.
Name: _______________________________ Date: __________________

Investigator’s Signature: _______________________________ Date: __________
Videotape Consent-Dissonance

Permission to Videotape

I understand that portions of the activities in experiment 1 may be videotaped and may be presented to adolescent girls as segments of a body image and self-esteem enhancement program. The experimenters have assured me that I will be notified prior to taping whether or not a specific activity will be taped. I agree to be videotaped and grant my permission to allow the principal investigator to display portions of the videotape at her discretion during various body image and self-esteem enhancement programs. I understand that all videotape not intended for program use will be erased immediately following the experiment’s completion.

________________________   ________________________
Name                                      Date
APPENDIX I

Experiment Introduction: Dissonance

Before we begin, I just wanted to let you know that each of you were selected to participate in this experiment because you were identified through your answers offered during mass testing as having valuable perspectives on women's issues. We want to remind you that your participation in this experiment is completely voluntary. If you elect to participate, it is important that you feel very committed to this cause. We request that you invest a lot of effort in the activities of this experiment so we can capitalize on your knowledge and produce a high quality program that will be maximally beneficial to young girls struggling with body image and self-esteem issues. Remember all of the products you produce over the course of this program may be shared in a self-esteem/body image enhancement program directed at groups of young adolescent girls in local middle and elementary schools.
APPENDIX J

Experiment Introduction: Psychoeducational/Sociocultural

Remember the purpose of the experiment is for us to gain additional knowledge from you about self-esteem/body image issues that young adolescent girls face today. We will use this information to aid us in the development of a body image/self-esteem enhancement program directed at groups of young adolescent girls in local middle and elementary schools. We want to inform you that all materials you complete over the course of this experiment are completely anonymous. Many materials will not contain your name and experimental numbers will only be used for the purposes of linking experimental materials. We will not use the materials you produce directly in our body image/self-esteem enhancement program, but will use them to educate us as presenters on relevant issues. Therefore, anything you elect to share via activities or written responses during this program will be kept private.
APPENDIX K
Rosenberg Self-Esteem Scale

1. I feel that I am a person of worth, at least on an equal plan with others.

never rarely sometimes often always
1 2 3 4 5

2. I feel that I have a number of good qualities.

never rarely sometimes often always
1 2 3 4 5

3. All in all, I am inclined to feel that I'm a failure.

never rarely sometimes often always
1 2 3 4 5

4. I am able to do things as well as most other people.

never rarely sometimes often always
1 2 3 4 5

5. I feel I do not have much to be proud of.

never rarely sometimes often always
1 2 3 4 5

6. I take a positive attitude toward myself.

never rarely sometimes often always
1 2 3 4 5

7. On the whole, I am satisfied with myself.

never rarely sometimes often always
1 2 3 4 5

8. I wish I could have more respect for myself.

never rarely sometimes often always
1 2 3 4 5
9. I certainly feel useless at times.

never  rarely  sometimes  often  always
1  2  3  4  5

10. At times, I think I am no good at all.

never  rarely  sometimes  often  always
1  2  3  4  5
APPENDIX L

INSTRUCTIONS: Listed below are several statements that concern the topic of intimate relationships. For the purpose of this questionnaire, an intimate relationship should be thought of as a close relationship with a single partner in which there is some sexual attraction. Please read each of the following statements carefully and decide to what extent it is characteristic of you. Some of the items refer to a specific intimate relationship. Whenever possible, answer the questions with your current partner in mind. If you are not currently dating anyone, answer the questions with your most recent partner in mind. If you have never had an intimate relationship, answer in terms of what you think your responses would most likely be. Then, for each statement fill in the response on the answer sheet that indicates how much it applies to you by using the following scale:

1 = Not at all characteristic of me.
2 = Slightly characteristic of me.
3 = Somewhat characteristic of me.
4 = Moderately characteristic of me.
5 = Very characteristic of me.

NOTE: Remember to respond to all items, even if you are not completely sure. Your answers will be kept in the strictest confidence. Also, please be honest in responding to these statements.

11. I am confident about myself as an intimate partner.
12. I think about intimate relationships all the time.
13. My intimate relationships are something that I am largely responsible for.
14. I reflect about my intimate relationships a lot.
15. I'm very motivated to be involved in an intimate relationship.
16. Intimate relationships make me feel nervous and anxious.
17. I'm very assertive in my intimate relationships.
18. I feel depressed about my intimate relationship.
19. My intimate relationships are determined mostly by chance happenings.
20. I'm concerned about what other people think of my intimate relationships.
21. I am somewhat afraid of becoming intimately involved with a partner.
22. I am very satisfied with the way my intimate needs are currently being met.
23. I think of myself as a pretty good intimate partner.
24. I think about intimate relationships more that anything else.
25. My intimate relationships are determined in large part by my own behavior.
26. I usually spend time thinking about my intimate relationships.
27. I'm strongly motivated to devote time and effort to an intimate relationship.
28. I am somewhat awkward and tense in intimate relationships.
29. I'm very direct about voicing preferences in my intimate relationships.
30. I feel unhappy about my intimate relationship.
31. Most things that affect my intimate relationships happen to me by accident.
32. I'm concerned about the way my intimate relationships are presented to others.
33. I sometimes have a fear of intimate relationships.
34. I am very satisfied with my intimate relationship.
35. I am better at intimate relationships than most other people.
36. I tend to be preoccupied with intimate relationships.
37. I exert a great deal of control over my intimate relationships.
38. I'm always trying to understand by intimate relationships.
39. I have a strong desire to be involved in an intimate relationship.
40. I feel nervous when I interact with a partner in an intimate relationship.
41. I am somewhat passive about expressing my desires in intimate relationships.
42. I feel discouraged about my intimate relationship.
43. Luck plays a big part in influencing the nature of my intimate relationships.
44. I usually worry about the impression my intimate relationships have on others.
45. On occasion, I am fearful of intimate involvement with a partner.
46. My intimate relationship meets my original expectations.
47. I would rate myself pretty favorably as an intimate partner.
48. I'm constantly thinking about being in an intimate relationship.
49. The main thing which affects my intimate relationships is what I myself do.
50. I'm very alert to changes in my intimate relationships.
51. It's really important to me that I involve myself in an intimate relationship.
52. I am more anxious about intimate relationships than most people are.
53. I do not hesitate to ask for what I want in an intimate relationship.
54. I feel disappointed about my intimate relationship.
55. My intimate relationships are largely a matter of fortune (good or bad).
56. I'm usually alert to other's reactions to my intimate relationships.
57. I don't have very much fear about being involved in an intimate relationship.
58. My intimate relationship is very good compared to most.
59. I would be very confident in an intimate relationship.
60. I think about intimate relationships the majority of the time.
61. My intimate relationships are something that I myself am in charge of.
62. I'm very aware of the nature in my intimate relationships.
63. I strive to keep myself involved in an intimate relationship.
64. I feel inhibited and shy in an intimate relationship.
65. When it comes to intimate relationships, I usually ask for what I want.
66. I feel sad when I think about my intimate relationship.
67. The nature of my intimate relationships is really a matter of fate or destiny.
68. I usually notice the way that others react to my intimate relationships.
69. I'm not very afraid of becoming involved in an intimate relationship.
70. I am very satisfied with the intimate aspects of my life.
71. I responded to the above items based on:
   (1) My current relationship.
   (2) A past close relationship.
   (3) An imagined close relationship.
Please fill in the circle corresponding to the number that best answers each of the following questions.

72. My close relationships are an important reflection of who I am.

1 2 3 4 5 6 7
Strongly Moderately Slightly Neutral Slightly Moderately Strongly Disagree Disagree Disagree Agree Agree Agree

73. When I feel close to someone, it often feels to me like that person is an important part of who I am.

1 2 3 4 5 6 7
Strongly Moderately Slightly Neutral Slightly Moderately Strongly Disagree Disagree Disagree Agree Agree Agree

74. I usually feel a strong sense of pride when someone close to me has an important accomplishment

1 2 3 4 5 6 7
Strongly Moderately Slightly Neutral Slightly Moderately Strongly Disagree Disagree Disagree Agree Agree Agree

75. I think one of the most important parts of who I am can be captured by looking at my close friends and understanding who they are.

1 2 3 4 5 6 7
Strongly Moderately Slightly Neutral Slightly Moderately Strongly Disagree Disagree Disagree Agree Agree Agree

76. When I think of myself, I often think of my close friends or family also.

1 2 3 4 5 6 7
Strongly Moderately Slightly Neutral Slightly Moderately Strongly Disagree Disagree Disagree Agree Agree Agree

77. If a person hurts someone close to me, I feel personally hurt as well.

1 2 3 4 5 6 7
Strongly Moderately Slightly Neutral Slightly Moderately Strongly Disagree Disagree Disagree Agree Agree Agree
78. In general, my close relationships are an important part of my self-image.

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<td>Strongly Disagree</td>
<td>Moderately Disagree</td>
<td>Slightly Disagree</td>
<td>Neutral</td>
<td>Slightly Agree</td>
<td>Moderately Agree</td>
<td>Strongly Agree</td>
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79. Overall, my close relationships are unimportant to my sense of what kind of person I am.

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<td>Slightly Agree</td>
<td>Moderately Agree</td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

80. My close relationships are unimportant to my sense of what kind of person I am.

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<tr>
<th>1</th>
<th>2</th>
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<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>Moderately Disagree</td>
<td>Slightly Disagree</td>
<td>Neutral</td>
<td>Slightly Agree</td>
<td>Moderately Agree</td>
<td>Strongly Agree</td>
</tr>
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</table>

81. My sense of pride comes from knowing who I have as close friends.

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<tr>
<th>1</th>
<th>2</th>
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<th>4</th>
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<tbody>
<tr>
<td>Strongly Disagree</td>
<td>Moderately Disagree</td>
<td>Slightly Disagree</td>
<td>Neutral</td>
<td>Slightly Agree</td>
<td>Moderately Agree</td>
<td>Strongly Agree</td>
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</table>

82. When I establish a close friendship with someone, I usually develop a strong sense of identification with that person.

<table>
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<th>1</th>
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<th>5</th>
<th>6</th>
<th>7</th>
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<tbody>
<tr>
<td>Strongly Disagree</td>
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<td>Neutral</td>
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<td>Moderately Agree</td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>
APPENDIX M

Essay: Dissonance

On the following blank pages, please write a brief essay (2-3 pages in length) describing the hazards of the thin-ideal and discouraging its acceptance. The essay should be directed toward a group of young adolescent women (elementary to middle school aged). Extremely salient and thoughtful essays may be presented during portions of an outreach program for young adolescent girls struggling with body image/self-esteem issues. Writing this essay is completely voluntary. If you desire, you can write an essay on a different difficult issue that adolescent girls face today, which is the pressure to please others and conform in order to be accepted by their peer groups. There is relatively more information available on the need to conform topic, compared to information concerning detrimental consequences of subscribing to the thin-ideal, but it is completely up to you which topic you elect to write about. You will discuss the content of your essay with other group members in a 20-minute video-taped discussion. Portions of the video-taped discussion may be presented during a program designed to help adolescent girls struggling with body image/self-esteem issues.
APPENDIX N

Essay: Psychoeducational/Sociocultural

In order to provide feedback to the presenter about the effectiveness of her presentation techniques, on the following pages please write a brief essay (2-3 pages in length) telling her what you learned during the lecture presentation concerning the hazards of the thin-ideal and reasons to discourage its acceptance. When finished, you can put your essays in an envelope and hand the envelope to the experimenter. Please remember that your essays will contain no identifying information and are linked only by experimental numbers, so your anonymity will be completely protected. We will discuss information contained in the essays for 20 minutes at the end of next week’s session to assess (as a group) what everyone learned during the presentation. To ensure your privacy, please do not reveal which essay you wrote during the discussion period. You will have 30 minutes to complete this essay.
APPENDIX O

Perceived Arousal Scale

Measure for Experiment 2

Now you will be completing experimental measures for a second experiment to be completed at the end of the next week's session. Again, this experiment is evaluating the impact of mood on self-image and mental health/well-being. These measures will simply be providing preliminary data for this experiment.

Indicate to what extent you feel this way right now, that is, at the present moment. Use the following 5-point rating scale to record your answers. Fill in the circle that contains the number corresponding to your rating (use attached bubble sheet).

very slightly  a little  moderately  quite a bit  extremely
or not at all

1. active
2. drowsy
3. exhausted
4. lively
5. sleepy
6. vigorous
7. alert
8. dull
9. fatigued
10. powerful
11. slow
12. weak
13. aroused
14. energetic
15. forceful
16. quiet
17. sluggish
18. weary
19. depressed
20. excited
21. inactive
22. sharp
23. tired
24. worn-out
APPENDIX P

PANAS

This scale consists of a number of words that describe different feelings and emotions. Indicate to what extent you have felt this way during the past few weeks. Use the following 5-point rating scale to record your answers. Fill in the circle that contains the number corresponding to your rating (use attached bubble sheet).

1 2 3 4 5
very slightly a little moderately quite a bit extremely
or not at all

25. interested
26. distressed
27. excited
28. upset
29. strong
30. guilty
31. scared
32. hostile
33. enthusiastic
34. proud
35. irritable
36. alert
37. ashamed
38. inspired
39. nervous
40. determined
41. attentive
42. jittery
43. active
44. afraid
APPENDIX Q

Counterattitudinal Statements: Dissonance

Develop brief (2-5 sentence) responses to the following 15 statements that endorse the thin-ideal. Your responses should oppose the position offered by each of the statements, thereby denouncing the thin-ideal and encouraging unconditional body acceptance. Please put a lot of effort into your responses as they may be given as sample responses in a body image/self-esteem enhancement program. It is your choice whether or not to participate in this portion of the experiment. You will be given $1 for your participation. If you elect not to participate, please sit quietly until this portion is completed. An example is provided below.

Sample Statement: If I gain a couple pounds that’s bad and I need to diet to get back down to my original size.

Sample Response: It’s normal for a woman’s weight to vary within 3-5 pounds (or more) over the course of any given month. It usually fluctuates somewhat and then stabilizes again at a weight that is healthy for my body. I’m not going to get concerned about a few pounds when I know that I haven’t changed my eating or exercise habits significantly.

1. Thin girls are more attractive.
2. Fat people are disgusting and lack will power.
3. If I do not have the same body type as the models I see in magazines, I need to diet and workout because I must be too heavy.
4. A round tummy and large hips are gross and I must work to keep my tummy flat and my hips small.
5. Boys don’t like fat girls.
6. The clothes I try on in the “in” clothing stores never look quite right on me. I have to search for clothes that look good. There must be something wrong with my body because all my friends seem to be able to wear those clothes.
7. People will not like me and will make fun of me if I gain too much weight.
8. I usually wear a size 8, but I have to buy a 10 in this dress. I must have gained weight. I need to go on a diet.
9. A bully in my class told me I was fat. I didn’t think I was, but maybe she’s right, maybe I should try to lose some weight to look better.
10. Slender people are more successful.
11. Anyone can reduce his/her weight. All one needs is hard work and will power and everybody can be thin.
12. I’ll be happier with myself if I could just lose 15 pounds.
13. I’m too fat to wear jeans in that style.
14. All thin people eat less than heavier people so they deserve to be thin.
15. Overweight people are unhealthy.
APPENDIX R

Counterattitudinal Statements: Psychoeducational/Sociocultural

Develop brief (2-5 sentence) responses to the following 15 statements that endorse the thin-ideal. Your responses should oppose the position offered by each of the statements, thereby denouncing the thin-ideal and encouraging unconditional body acceptance. It is your choice whether or not to participate in this portion of the experiment. You will be given $5 for your participation. If you elect not to participate, please sit quietly until this portion is completed. Your responses will be kept completely private. You will have 20 minutes to complete this activity.

Sample Statement: If I gain a couple pounds that’s bad and I need to diet to get back down to my original size.

Sample Response: It’s normal for a woman’s weight to vary within 3-5 pounds (or more) over the course of any given month. It usually fluctuates somewhat and then stabilizes again at a weight that is healthy for my body. I’m not going to get concerned about a few pounds when I know that I haven’t changed my eating or exercise habits significantly.

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14. All thin people eat less than heavier people so they deserve to be thin.
15. Overweight people are unhealthy.
Optional Homework Activity: Dissonance

For the next part of the experiment, you'll be helping adolescent girls to generate ideas to refute negative self-talk concerning their appearances. In order to do this most effectively, we'd like you to keep track of your own negative body talk for a one week period of time. This would require you to keep a diary with you and write down any negative body thoughts you have about yourself or others. Then, we'd like you to write a thought immediately following this negative thought that is positive in nature, in order to refute the negative thought. Different people have different numbers of negative body messages per day, but we would like you to make a conscious effort to attempt to record each instance of negative body self-talk that occurs. Then, MAKE SURE that you record a positive thought to refute each negative thought that occurs.

Examples:

**Negative Thoughts**

I'm devastated that I wear a size 9 in these jeans, usually I only wear an 8.
I'm so fat.

I feel so guilty that I just ate that chocolate chip cookie.

That girl should not be wearing that dress.

**Positive Refutes**

I'm frustrated with these clothing designers. No two sizes are ever the same across brands and styles. This means nothing about me.

Chocolate is not a "bad food". Everything in moderation is fine. I need a variety of food in my diet.

She can wear whatever she wants. It's great that she feels confident enough to wear that style.

Please put as much effort as possible into this activity, as we're going to present these ideas on videotape as specific examples of things young girls could say to themselves when struggling with detrimental negative body talk. This activity is completely voluntary. You will be compensated with 1 experimental credit for your participation. Please bring the written record to the next week's session in order to receive your compensation. At the end of the week, please complete the following questions and turn this page in with your diary entries.

1) How often on average did you write in your diary per day? ________
2) How many total statements did you record? ________
3) How many days (if any) did you fail to remember to write in your diary? ________
4) How many thoughts (if any) did you fail to record? ________
5) How many negative body thoughts would you estimate you have per day? ________
APPENDIX T

Optional Homework Activity: Psychoeducational/Sociocultural

Two times this week record in writing a negative body image message that you send to yourself or others. Then, write two positive statements refuting the 2 negative body image messages you recorded. This activity is completely voluntary. You will be compensated with 1 extra credit point if you elect to participate. Your records will be kept completely private. Please bring the written record to the next week’s session in order to receive your compensation.

Examples:

**Negative Thoughts**
- I’m devastated that I wear a size 9 in these jeans, usually I only wear an 8.
- I’m so fat.

**Positive Refutes**
- I’m frustrated with these clothing designers. No two sizes are ever the same across brands and styles. This means nothing about me.
- I feel so guilty that I just ate that chocolate chip cookie.
- Chocolate is not a “bad food”. Everything in moderation is fine. I need a variety of food in my diet.
- That girl should not be wearing that dress.
- She can wear whatever she wants. It’s great that she feels confident enough to wear that style.
APPENDIX U

Letter Responses: Dissonance

We have gathered written scenarios from girls at a local middle school concerning difficult situations they have faced within the previous week and elected to write about as participants in our self-esteem/body image enhancement program. We have a variety of situations from a variety of different girls. We have included two for you to choose from. Please choose only one situation and direct a letter to the girl involved that provides advice intended to be helpful. You can choose to respond either to a situation involving interpersonal concerns or a situation involving body image concerns. If you elect to respond to a situation involving body image concerns, please take a stance that advocates against the thin-ideal. Please be as thoughtful as possible when formulating your letter of response because these issues are very sensitive for the girls involved and the letter you write will be mailed directly to the participant’s school for her to read. Identifying information have been removed from the participants’ letters to ensure their anonymity, so you do not need to address the girl by name. We have received relatively fewer people replying to the situations involving body image concerns (situation one here), but it is completely up to you which situation you elect to write about.

Please write a letter response to only one of the following two situations. If you elect to respond to situation one, please formulate a response that opposes the thin-ideal.

Situation One
I’ve felt really sad a lot of the time lately. I hate the way I look. All the other girls in my class are really thin and I’m bigger than most of them. A lot of people make fun of me, even though I’m not really fat. I’m just a bit bigger. I don’t understand why they’re so mean. What makes it worse is that all my friends constantly talk about how fat they are and they’re not. They’re all so little. I feel like I don’t belong. I feel disgusting. I feel like I need to lose weight to fit in more and to get a boyfriend. I never feel pretty anymore. I feel uncomfortable wearing really short skirts or tight jeans and that’s what all my friends wear. I feel like I can’t look as pretty as they look because the kinds of clothes they wear don’t look right on me. I get so upset and angry at myself. I want to go on a diet, but my doctor said at my last physical that my weight was normal. I don’t feel normal. I feel like I don’t belong. I wish I didn’t have to think about this all the time, but it seems like it never goes away.

Situation Two
My friends don’t seem like really good friends at times. It’s always been really important for me to fit in with the popular girls, but lately I’m not so sure about this. Sometimes my friends act really mean and treat people really bad and I feel like I have to go along with them or they won’t be my friends anymore. Sometimes I’ve said really nasty things to people that are really nice and I feel bad about it later. I feel like I have to act like someone else a lot of times when I’m with my friends. I don’t really even trust most of them because everybody always seems to talk behind each other’s backs. I don’t know what to do. I want to be popular, but I’m tired of not being myself and I’m really tired of feeling like I’m a bad person because I’m being mean to other people.
In the following scenario, you will read a paragraph about a situation written by an adolescent girl struggling with body image concerns. Please provide advice to the girl via a written letter. Your advice should advocate against the thin-ideal. These letters will not be sent to the girls, but will help us consider types of responses that may be helpful in this situation. Since the numbers linking experimental materials will be destroyed soon after the experiment’s end, your letters will contain no identifying information. Therefore, your identity will remain completely anonymous. You will have 30 minutes to complete this activity.

I’ve felt really sad a lot of the time lately. I hate the way I look. All the other girls in my class are really thin and I’m bigger than most of them. A lot of people make fun of me, even though I’m not really fat. I’m just a bit bigger. I don’t understand why they’re so mean. What makes it worse is that all my friends constantly talk about how fat they are and they’re not. They’re all so little. I feel like I don’t belong. I feel disgusting. I feel like I need to lose weight to fit in more and to get a boyfriend. I never feel pretty anymore. I feel uncomfortable wearing really short skirts or tight jeans and that’s what all my friends wear. I feel like I can’t look as pretty as they look because the kinds of clothes they wear don’t look right on me. I get so upset and angry at myself. I want to go on a diet, but my doctor said at my last physical that my weight was normal. I don’t feel normal. I feel like I don’t belong. I wish I didn’t have to think about this all the time, but it seems like it never goes away.
APPENDIX W

Discussion Group: Dissonance

We are interested in videotaping a discussion group denouncing the thin-ideal for a group of adolescent girls struggling with body image issues. Please participate frequently if you elect to engage in this activity because we feel you each have valuable perspectives to offer. You can refer to the essays you wrote earlier denouncing the thin-ideal if this would be helpful. Videotapes will be viewed at an intervention workshop in a local middle school for young women struggling with body image/self-esteem issues. Participation in this activity is completely voluntary. If you elect not to participate, please check the blank “no” below on your experiment packet and sit quietly and listen to the discussion for the next 30 minutes.

No ______
APPENDIX X

Discussion Group: Psychoeducational/Sociocultural

Please engage in a 30-minute discussion denouncing the thin-ideal. I am going to remain inactive during this portion, but please try to state as much as you can about the potential negative consequences of the thin-ideal, as we are trying to assess how much you have learned during the experiment. You can refer to the essays you wrote early about the thin-ideal if this would be helpful.
APPENDIX Y

Beck Depression Inventory -- II

Instructions: This questionnaire consists of 21 groups of statements. Please read each group of statements carefully, and then pick out the one statement in each group that best describes the way you have been feeling during the past two weeks, including today. Circle the number beside the statement you have picked. If several statements in the group seem to apply equally well, circle the highest number for that group. Be sure that you do not choose more than one statement for any group, including item 16 (Changes in Sleeping Pattern) or Item 18 (Changes in Appetite). YOU WILL CIRCLE THESE ITEMS ON THIS SHEET, NOT ON YOUR BUBBLE SHEET.

Instructions: This questionnaire consists of 21 groups of statements. Please read each group of statements carefully, and then pick out the one statement in each group that best describes the way you have been feeling during the past two weeks, including today. Circle the number beside the statement you have picked. If several statements in the group seem to apply equally well, circle the highest number for that group. Be sure that you do not choose more than one statement for any group, including item 16 (Changes in Sleeping Pattern) or Item 18 (Changes in Appetite).

1. Sadness
   0 I do not feel sad.
   1 I feel sad much of the time.
   2 I am sad all the time.
   3 I am so sad or unhappy that I can't stand it.

2. Pessimism
   0 I am not discouraged about my future.
   1 I feel more discouraged about my future than I used to be.
   2 I do not expect things to work out for me.
   3 I feel my future is hopeless and will only get worse.

3. Past Failure
   0 I do not feel like a failure.
   1 I have failed more than I should have.
   2 As I look back, I see a lot of failures.
   3 I feel I am a total failure as a person.

4. Loss of Pleasure
   0 I get as much pleasure as I ever did from the things I enjoy.
   1 I don't enjoy things as much as I used to.
   2 I get very little pleasure from the things I used to enjoy.
   3 I can't get any pleasure from the things I used to enjoy.
5. Guilty Feelings
   0 I don't feel particularly guilty.
   1 I feel guilty over many things I have done or should have done.
   2 I feel quite guilty most of the time.
   3 I feel guilty all of the time.

6. Punishment Feelings
   0 I don't feel I am being punished.
   1 I feel I may be punished.
   2 I expect to be punished.
   3 I feel I am being punished.

7. Self-Dislike
   0 I feel the same about myself as ever.
   1 I have lost confidence in myself.
   2 I am disappointed in myself.
   3 I dislike my self.

8. Self-Criticalness
   0 I don't criticize or blame myself more than usual.
   1 I am more critical of myself than I used to be.
   2 I criticize myself for all of my faults.
   3 I blame myself for everything bad that happens.

9. Suicidal Thoughts or Wishes
   0 I don't have any thoughts of killing myself.
   1 I have thoughts of killing myself, but I would never carry them out.
   2 I would like to kill myself.
   3 I would like to kill myself if I had the chance.

10. Crying
    0 I don't cry anymore than I used to.
    1 I cry more than I used to.
    2 I cry over every little thing.
    3 I feel like crying, but I can't.

11. Agitation
    0 I am no more restless or wound up than usual.
    1 I feel more restless or wound up than usual.
    2 I am so restless or agitated that it's hard to stay still.
    3 I am so restless or agitated that I have to keep moving or doing something.

12. Loss of Interest
    0 I have not lost interest in other people or activities.
<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I am less interested in other people or things than before.</td>
</tr>
<tr>
<td>2</td>
<td>I have lost most of my interest in other people or things.</td>
</tr>
<tr>
<td>3</td>
<td>It's hard to get interested in anything.</td>
</tr>
</tbody>
</table>

13. Indecisiveness
- **0** I make decisions about as well as ever.
- **1** I find it more difficult to make decisions than usual.
- **2** I have much greater difficulty in making decisions than I used to.
- **3** I have trouble making any decisions.

14. Worthlessness
- **0** I do not feel I am worthless.
- **1** I don't consider myself as worthwhile and useful as I used to.
- **2** I feel more worthless as compared to other people.
- **3** I feel utterly worthless.

15. Loss of Energy
- **0** I have as much energy as ever.
- **1** I have less energy than I used to have.
- **2** I don’t have enough energy to do very much.
- **3** I don’t have enough energy to do anything.

16. Changes in Sleeping Pattern
- **0** I have not experienced any change in my sleeping pattern.
- **1a** I sleep somewhat more than usual.
- **1b** I sleep somewhat less than usual.
- **2a** I sleep a lot more than usual.
- **2b** I sleep a lot less than usual.
- **3a** I sleep most of the day.
- **3b** I wake up 1-2 hours early and can’t get back to sleep.

17. Irritability
- **0** I am no more irritable than usual.
- **1** I am more irritable than usual.
- **2** I am much more irritable than usual.
- **3** I am irritable all the time.

18. Changes in Appetite
- **0** I have not experienced any change in my appetite.
- **1a** My appetite is somewhat less than usual.
- **1b** My appetite is somewhat more than usual.
- **2a** My appetite is much less than before.
- **2b** My appetite is much greater than usual.
- **3a** I have no appetite at all.
- **3b** I crave food all the time.
19. Concentration Difficulty
   0  I can concentrate as well as ever.
   1  I can’t concentrate as well as usual.
   2  It’s hard to keep my mind on anything for very long.
   3  I find I can’t concentrate on anything.

20. Tiredness or Fatigue
   0  I am no more tired or fatigued than usual.
   1  I get more tired or fatigued more easily than usual.
   2  I am too tired or fatigued to do a lot of things I used to do.
   3  I am too tired or fatigued to do most of the things I used to do.

21. Loss of Interest in Sex
   0  I have not noticed any recent changes in my interest in sex.
   1  I am less interested in sex than I used to be.
   2  I am much less interested in sex now.
   3  I have lost interest in sex completely.
APPENDIX Z
Dutch Restrained Eating Scale

1. When you have put on weight, do you eat less than you usually do?

never rarely sometimes often always
1 2 3 4 5

2. Do you try to eat less at mealtimes than you would like to eat?

never rarely sometimes often always
1 2 3 4 5

3. How often do you refuse food or drink offered to you because you are concerned about your weight?

never rarely sometimes often always
1 2 3 4 5

4. Do you watch exactly what you eat?

never rarely sometimes often always
1 2 3 4 5

5. Do you deliberately eat foods that are slimming?

never rarely sometimes often always
1 2 3 4 5

6. When you have eaten too much, do you eat less than usual the following day?

never rarely sometimes often always
1 2 3 4 5

7. Do you deliberately eat less in order not to become heavier?

never rarely sometimes often always
1 2 3 4 5

8. How often do you try not to eat between meals because you are watching your weight?

never rarely sometimes often always
1 2 3 4 5
9. How often in the evenings do you try not to eat because you are watching your weight?

never  rarely  sometimes  often  always
1  2  3  4  5

10. Do you take into account your weight with what you eat?

never  rarely  sometimes  often  always
1  2  3  4  5
APPENDIX AA

Beliefs About Appearance Scale

How much do you agree with each of these statements?

1. The opinion others have of me is based on my appearance.
   not at all somewhat moderately a lot extremely
   1 2 3 4 5

2. The amount of influence I have on others depends upon how I look.
   not at all somewhat moderately a lot extremely
   1 2 3 4 5

3. People will think less of me if I don’t look my best.
   not at all somewhat moderately a lot extremely
   1 2 3 4 5

4. People would be more interested in me if I looked better.
   not at all somewhat moderately a lot extremely
   1 2 3 4 5

5. My relationships would improve if I looked the way I wanted.
   not at all somewhat moderately a lot extremely
   1 2 3 4 5

6. The success of my future job or career depends upon how I look.
   not at all somewhat moderately a lot extremely
   1 2 3 4 5

7. My appearance influences my ability to do things.
not at all  somewhat  moderately  a lot  extremely
1  2  3  4  5

8. My performance in school/work is influenced by how I look.

not at all  somewhat  moderately  a lot  extremely
1  2  3  4  5

9. My school/work performance would improve if I looked the way I want.

not at all  somewhat  moderately  a lot  extremely
1  2  3  4  5

10. The opportunities that are available to me depend upon how I look.

not at all  somewhat  moderately  a lot  extremely
1  2  3  4  5

11. My value as a person depends upon how I look.

not at all  somewhat  moderately  a lot  extremely
1  2  3  4  5

12. How I feel about myself is largely based on my appearance.

not at all  somewhat  moderately  a lot  extremely
1  2  3  4  5

13. I would think more highly of myself if I looked the way I wanted.

not at all  somewhat  moderately  a lot  extremely
1  2  3  4  5

15. How is look is a large part of who I am.
16. It’s difficult to feel good about myself when I’m not looking my best.

not at all  somewhat  moderately  a lot  extremely
1  2  3  4  5

17. My ability to feel happy depends upon how I look.

not at all  somewhat  moderately  a lot  extremely
1  2  3  4  5

18. Improving my appearance is one of the things that makes me feel good.

not at all  somewhat  moderately  a lot  extremely
1  2  3  4  5

19. My life would be more rewarding if I look good.

not at all  somewhat  moderately  a lot  extremely
1  2  3  4  5

20. My moods are influenced by how I look.

not at all  somewhat  moderately  a lot  extremely
1  2  3  4  5

21. I would enjoy life more if I looked the way I wanted.

not at all  somewhat  moderately  a lot  extremely
1  2  3  4  5
APPENDIX BB

Ideal Body Stereotype Scale – Revised

We want to know what you think attractive women look like. How much do you agree with the following statements?

1. Slim women are more attractive.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

2. Tall women are more attractive.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

3. Women with toned bodies are more attractive.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

4. Women who are in shape are more attractive.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

5. Slender women are more attractive.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
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6. Women with long legs are more attractive.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

7. Curvy women are more attractive.
8. Shapely women are more attractive.

<table>
<thead>
<tr>
<th>strongly disagree</th>
<th>disagree</th>
<th>neutral</th>
<th>agree</th>
<th>strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
APPENDIX CC

Eating Disorder Examination-Questionnaire

Please complete this measure on the second bubble sheet provided. The following questions are concerned with the PAST FOUR WEEKS ONLY (28 days). Please read each question carefully and fill in the circle corresponding to your answer. Please answer questions 1-14 on the following scale.

<table>
<thead>
<tr>
<th>ON HOW MANY DAYS OUT OF THE PAST 28 DAYS</th>
<th>No days</th>
<th>1-5 days</th>
<th>6-12 days</th>
<th>13-15 days</th>
<th>16-22 days</th>
<th>23-27 days</th>
<th>Every day</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

1. Have you been deliberately trying to limit the amount of food you eat to influence your shape or weight?
2. Have you gone for long periods of time (8 hours or more) without eating anything in order to influence your shape or weight?
3. Have you tried to avoid eating any foods which you like in order to influence your shape or weight?
4. Have you tried to follow definite rules regarding your eating in order to influence your shape or weight; for example, a calorie limit, a set amount of food, or rules about what or when you should eat?
5. Have you wanted your stomach to be empty?
6. Has thinking about food or its calorie content made it much more difficult to concentrate on things you are interested in; for example, reading, watching TV, or following a conversation?
7. Have you been afraid of losing control over eating?
8. Have you had episodes of binge eating?
9. Have you eaten in secret? (Do not count binges.)
10. Have you definitely wanted your stomach to be flat?
11. Has thinking about shape or weight made it more difficult to concentrate on things you are interested in; for example, reading, watching TV or following a conversation?
12. Have you had a definite fear that you might gain weight or become fat?
13. Have you felt fat?
14. Have you had a strong desire to lose weight?

Please answer the following questions on your bubble sheet for questions in which there is a scale provided. For questions in which a blank is provided, please fill in your answer on the blank provided on this sheet. For answers containing blanks, please skip these numbers on your bubble sheet.

OVER THE PAST FOUR WEEKS (28 DAYS)
15. On what proportion of times that you have eaten have you felt guilty because the effect on your shape or weight? (Do not count binges.)

0 - None of the times
1 - A few of the times
2 - Less than half the times
3 - Half the times
4 - More than half the times
5 - Most of the time

16. Over the past four weeks (28 days), have there been any times when you have felt that you have eaten what other people would regard as an unusually large amount of food given the circumstances?

0 - No
1 - Yes

17. How many such episodes have you had over the past four weeks? ________

18. During how many of these episodes of overeating did you have a sense of having lost control over your eating? ________

19. Have you had other episodes of eating in which you have had a sense of having lost control and eaten too much, but have not eaten an unusually large amount of food given the circumstances?

0 - No
1 - Yes

20. How many such episodes have you had over the past four weeks? ________

21. Over the past four weeks have you made yourself sick (vomit) as a means of controlling your shape or weight?

0 - No
1 - Yes

22. How many times have you done this over the past four weeks? ________

23. Have you taken laxatives as a means of controlling your shape or weight?

0 - No
1 - Yes

24. How many times have you done this over the past four weeks? ________

25. Have you taken diuretics (water tablets) as a means of controlling your shape or weight?

0 - No
1 - Yes

26. How many times have you done this over the past four weeks? ________

27. Have you exercised hard as a means of controlling your shape or weight?

0 - No
1 - Yes

28. How many times have you done this over the past four weeks? ________

Over the past four weeks (28 days), please fill in the circle of the number that best describes your behavior. Please answer questions 29-36 on the following scale:

0 1 2 3 4 5 6
Not at all Slightly Moderately Markedly
29. Has your weight influenced how you think about (judge) yourself as a person?

30. Has your shape influenced how you think about (judge) yourself as a person?

31. How much would it upset you if you had to weigh yourself once a week for the next four weeks?

32. How dissatisfied have you felt about your weight?

33. How dissatisfied have you felt about your shape?

34. How concerned have you been about other people seeing you eat?

35. How uncomfortable have you felt seeing your body; for example, in the mirror, in shop window reflections, while undressing or taking a bath or shower?

36. How uncomfortable have you felt about others seeing your body; for example, in communal changing rooms, when swimming or wearing tight clothes?
APPENDIX DD

Experiment Agenda: Control

Session One
1. Reading and signing informed consent (5 minutes)
2. Completion of experimental measures (55 minutes)

4-Week Follow-Up Session
1. Completion of experimental measures (55 minutes)
2. Debriefing (5 minutes)
APPENDIX EE

Experimenter Developed Measure of Cognitive Dissonance

1. I felt free to express my own views during this experiment.
   1 2 3 4 5
   not at all somewhat moderately a lot extremely

2. I feel that I invested a lot of effort in the activities involved in this experiment.
   1 2 3 4 5
   not at all somewhat moderately a lot extremely

3. I feel confident that the perspectives I shared during this experiment will be shared with others.
   1 2 3 4 5
   not at all somewhat moderately a lot extremely

4. I feel confident that this experiment will change the attitudes of others.
   1 2 3 4 5
   not at all somewhat moderately a lot extremely

5. My knowledge of this topic has increased over the course of the experiment.
   1 2 3 4 5
   not at all somewhat moderately a lot extremely

6. I felt very involved in this experiment.
   1 2 3 4 5
   not at all somewhat moderately a lot extremely
### APPENDIX FF

Table 10. Skewness and Kurtosis Statistics for Residuals of Postintervention and Follow-up Measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDI-II Post</td>
<td>-.24</td>
<td>-.60</td>
</tr>
<tr>
<td>BDI-II Follow-up</td>
<td>1.03</td>
<td>1.39</td>
</tr>
<tr>
<td>BAAS Post</td>
<td>.74</td>
<td>-.09</td>
</tr>
<tr>
<td>BAAS Follow-up</td>
<td>3.03</td>
<td>16.16</td>
</tr>
<tr>
<td>DRES Post</td>
<td>-.12</td>
<td>.03</td>
</tr>
<tr>
<td>DRES Follow-up</td>
<td>-.24</td>
<td>-.09</td>
</tr>
<tr>
<td>EDE-Q Post</td>
<td>.50</td>
<td>-.24</td>
</tr>
<tr>
<td>EDE-Q Follow-up</td>
<td>.86</td>
<td>.74</td>
</tr>
<tr>
<td>IBSS-R Post</td>
<td>-.47</td>
<td>1.14</td>
</tr>
<tr>
<td>IBSS-R Follow-up</td>
<td>.09</td>
<td>1.02</td>
</tr>
</tbody>
</table>
REFERENCES


of Nebraska Press.


disorders (pp.115-120). New York: Raven Press.


